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THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

Edited by
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PHYLLONORYCTER PLATANI (STAUDINGER, 1870) (LEPIDOPTERA: GRACILLARIIDAE) NEW TO BRITAIN

A.M. EMMET

Labrey Cottage, Victoria Gardens, Saffron Walden, Essex CB11 3AF

IN RECENT autumns it has become easy to recognise a microlepidopterist when he is walking in the streets of London. His eyes are cast down as he scrupulously searches the carpet of plane leaves beneath his feet for the mines of *Phyllonorycter platani.* This is a native of south-eastern Europe but, like its relative *P. leucographella* (Zeller), it has steadily been extending its range northwards and westwards and its arrival in Britain was deemed to be just a matter of time.

The car park of Imperial College, London, where the Annual Exhibition of the British Entomological & Natural History Society was held on the 27th October 1990, is shaded by plane-trees. On disembarking there, I adopted the behaviour pattern of my kind and at once astounded my companions by executing an octogenarian war dance whilst brandishing a leaf aloft and chanting "New to Britain!". I duly placed the mined leaf, appropriately annotated, amongst the exhibits.

The post-exhibition field meeting used to be one of the most popular events in the Society's calendar, often being attended by 30 - 40 members. Now, sadly, it has been discontinued, but 1990 saw its revival: the Annual Exhibition was to become exhibition and field meeting all in one. Out trooped the microlepidopterists to the car park and, when that proved unproductive, they migrated onwards to the garden surrounding the British Museum (Natural History). There the mines were found in some plenty, mainly in leaves that were still on the trees and within a man's reach. I was unable to join this expedition but was kindly presented with their prize find, a single leaf bearing no fewer then eight mines.

Since then, mines have been found elsewhere in the neighbourhood and also at Kew Gardens. This is not surprising, since many of the leaves swept up from the London streets are taken to Kew to make compost.

I hope to write a more substantial article next spring when the moths have emerged, giving a full description of them and of their early stages. However, since my discovery has already received such widespread publicity, a preliminary notice seems desirable.

Hitherto unreported foodplants for *Simyra albovenosa* (Goeze) (Lep.: Noctuidae).

The catholic tastes of this species in captivity are well known e.g. Allan (1949) and Heath & Emmet (1983) quote *Salix cinerea, S. repens* and *Rhamnus catharticus* as suitable foodplants for rearing. In addition, Skinner (1984) notes that broad-leaved grasses are also accepted. However, in the wild *Phragmites australis* is the more usual foodplant, though Heath

& Emmet (*loc. cit.*) also record *Catabrosa aquatica* and *Carex elata* as alternative hosts.

During an invertebrate survey on some fen sites in Norfolk, funded by the Nature Conservancy Council, Deborah Procter and myself encountered larvae of *S. albovenosa* feeding on a range of wetland plants. Most often *P. australis,* but in additdion, four hitherto unreported foodplants were noted: Single larva on *Carex paniculata,* 1.viii.1988, Great Cressingham Fen; single larva on *Cladium mariscus,* 8.ix.1988, Swangey Fen; single larva on *Rumex hydrolapathum,* 12.vii.1988, Old Buckingham Fen; single larva on *Lysimachia vulgaris,* 19.vi.1989, Bure Marshes NNR. The first aforementioned larva was in its final instar, the remaining three in lesser stages of development.

In all instances the larvae were observed in the wild to feed on the plants listed, and were successfully reared to the adult stage in captivity by providing the same host plant as recorded in the field. Incidentally, the larvae on *C. paniculata* and *C. mariscus* showed a preference for these respective hosts, when simultaneously given the choice of *P. australis,* though the latter was eaten when provided on its own.

At each of the localities cited above *P.australis* was present in the sward. Indeed in the case of Old Buckingham Fen it was the dominant plant in a commercially harvested reed bed cut for thatch, whereas *R. hydrolapathum* was present only as isolated plants, mainly at the fringe of the reed bed.

Whilst *P. australis* was the most frequently recorded foodplant, these observations suggest, that in Norfolk at least, larvae of *S. albovenosa* utilise a variety of wetland plants as hosts.—A.P. FOSTER, c/o Nature Conservancy Council, 60 Bracondale, Norwich, Norfolk NR1 2BE.

References: Allan, P.B.M. (1949). *Larval Foodplants.* London.

Heath, J. & Emmet, A.M. (Eds.) (1983). *The Moths and Butterflies of Great Britain and Ireland.* Volume 10. Harley Books, Colchester.

Skinner, B. (1984). *Colour Identification Guide to Moths of the British Isles.* Viking, London.

Editorial assistant wanted

We are seeking an assistant editor to help with the production of the *Record.* The post would suit someone with a little time to spare each month and an interest in or flair for entomological publishing. The tasks include working with the editor in forward planning, preparing text for the printer, editing and/or rewriting contributions and helping with proof reading.

The only skills required are a reasonable working knowledge of the English language (with, preferably, a better grasp of grammar and spelling than the current editor!), a love of entomology, and a "feel" for the style of the *Record.* A word processor would be useful, but not essential. As with all other posts with the *Record,* the position is voluntary (!), although all expenses will be met. If you are interested, please drop the editor a line.

THE DISTRIBUTION AND OCCURRENCE OF THE TANNER BEETLE, *PRIONUS CORIARIUS* L. (COL.: PRIONIDAE) IN GREAT BRITAIN

RAYMOND R. UHTHOFF-KAUFMANN

13 Old Road, Old Harlow, Essex CM17 0HB

ALPHABETICAL symbols in use are those advocated by Balfour-Browne (Kaufmann, 1989); italicised ones indicate widespread captures; bracketed letters signify that confirmatory evidence is still lacking. A dagger (†) represents an imported specimen.

Prionus coriarius L.

This, our largest and heaviest Longhorn, measuring up to 4.5 cm long, is the only indigenous representative of the large family of Prionidae. Local, sometimes not uncommon, it is found mainly in well-wooded regions where one of the principal growths is oak, a tree with which *Prionus* is frequently associated. The beetle occurs in two defined areas: west-north-westerly to Lancashire and Westmorland, and from the south-west peninsula along the whole of the Channel coast (but excluding the Isle of Wight), the Home Counties, and then eastwards to include East Anglia as far as the Wash.

Mansfield in Nottinghamshire loosely links these two regions. A more careful search may indicate that this handsome insect is more widespread in the Midland counties than is at present known. Welsh records are very scarce, due perhaps to the beetle's nocturnal habits, landscape changes in arboriculture, and not many Welsh Coleopterists. The Tanner Beetle is unknown in Scotland or Ireland.

ENGLAND: *BK* BX CB *CH DT* EC *EK EN ES EX* GE GW *HF HT* L MX ND *NE* NH NM NW *SD SE SH* SL SP *SR* SS *ST* (SW) SY† WC *WK* WL WN WO

WALES: DB *GM*

Although more often found in the moist roots and lower parts of dying and decaying oak trees, the larva of *Prionus* is amphixylophagous; it also occurs in the rotting stumps of alder, apple, ash, beech, birch, cherry, elm, hazel, holly, hornbeam, horsechestnut, plane, plum, Scots pine, silver fir, spruce, willow and very occasionally even telegraph poles and old posts. As the larvae prefer rotten roots they will tunnel through the soil in search of a new and edible pabulum. Very rarely are they found higher than a foot or so in upright trunks. When fully grown the larva is over 8cm long. It is parasitised by the Hymenopteron *Deuteroxorides albitarsus* Grav. and by several species of Diptera, namely, *Parasarcophaga aratrix* Pand., *Billaea microcera* Rond., *B. pectinata* Mg, and *B. subrotundata* Rond. Predators include the centipede, *Lithobius,* which will devour the eggs and young larvae, and possibly the larva of the Coleopteron *Melanotus rufipes*

Herbst. It is unlikely that the larvae of *Prionus* are preyed upon by woodpeckers as the former do not tunnel sufficiently high up the boles to attract these birds' attentions.

Pupation usually takes place in an ample soft earthen cocoon, 4.5cm long by 3cm wide, quite smooth inside, and some 1 to 3 inches underground somewhere near the roots of the host plant. This customary form of pupal chamber is sometimes encountered in the ground underneath a fallen log upon which the larva has fed. There are a few records of cocoons made from earth and wooden fragments bound together with larval secretions but this form of pupal cell is most unusual.

Metamorphosis takes from three to four years, the imagines emerging from May onwards until as late as October; however, the main eclosion months are mid-July and August. Their exit holes round the base of the host tree resemble those made by mice and are almost one inch in diameter.

In general, the males emerge before the females; neither sex survives beyond a month. Dead beetles, probably those that have ecloded in the autumn, are sometimes found apparently sheltering from the cold among exposed roots and in leaf drifts; there is no evidence to suggest that they hibernate or overwinter.

Prionus is crepuscular in habit, sluggish, and hides in the daytime. It appears at dusk, preferably on hot or sultry, even rainy evenings. In some southern localities it is still not uncommon, taking — not surprisingly in view of its size — to a somewhat heavy undulating flight. It has been found in the open on fennel and privet flowers, or at rest on old stumps and posts. *Prionus* is not a nectar seeking beetle; nevertheless, it is attracted to entomologists' "sugar". There are also records of its capture while circling round household lights.

The sexes are dimorphous; the male has very conspicuous 12-jointed serrate antennae; those of the female are 11-jointed, noticeably more slender and shorter.

A pugnacious beetle, *Prionus* stridulates loudly when picked up and during copulation. If several are found, they should always be boxed separately, the males in particular being ferocious fighters.

This beetle is not regarded as an economic pest despite that its larvae do reduce to frass the roots and boles of some standing delicate or partly diseased ornamental and parkland trees.

P. coriarius is figured among others by Martyn (1792), Donovan (1809) and Curtis (1838), but it was known to naturalists much earlier. Dr Thomas Moffet, whose young daughter had, it is recalled, a most fearsome encounter with an Arachnid as she partook of a 16th century version of yoghurt, writing well over three centuries ago about *Prionus* stated "*It hath a little broad head, great ox eyes, almost three fingers overthwart in length; it hath a forked mouth, gaping and terrible, with two very hard, crooked teeth: with these, while he gnaws the wood (I speak from experience) it*

doth perfectly grunt aloud like a young pig . . . and being wearied with flying, she useth them [the "horns"] *for feet: for knowing that his legs are weak, he twists his horns about the branch of a tree, and so he hangs at ease . . .*". The late Evelyn Duffy, who made a special study of the habits of *P. coriarius* (1946), never observed the Tanner Beetle suspended by its antennae!

Acknowledgements

Cordial thanks for their information and records are extended to A.A. Allen, Esq, D.B. Atty, Esq, J. Cooter, Esq, Mrs B. Leonard, Librarian, Royal Entomological Society, D.R. Nash, Esq, C. MacKechnie Jarvis Esq and Professor J.A. Owen.

References

Bílý, S. & Mehl, O., 1989. Longhorn Beetles (Coleoptera, Cerambycidae) of Fennoscandia and Denmark, *Fauna Ent. Scand.* **22**. Leiden and New York.

Box, H.E., 1915. Prionus coriarius F. (*sic*) in Epping Forest, *Entomologist's mon. Mag.*, (3) **1**: 310.

Curtis, J., 1838. *British Entomology,* **15**. London.

Demelt, C. von, 1966. Die Tierwelt Deutschlands, **52**: 2. *Bockkäfer oder Cerambycidae,* **1**. Jena.

Donovan, E., 1809. *The natural history of British Insects,* **14**. London.

Duffy, E.A.J., 1946. A contribution towards the biology of *Prionus coriarius* L. (Coleoptera, Cerambycidae), *Trans. R. ent. Soc. Lond.,* **97**, part 17: 419-442. Two plates.

—, 1953. *A monograph of the immature stages of British and imported Timber Beetles (Cerambycidae).* London.

Fowler, W.W., 1890. *The Coleoptera of the British Islands,* **4**. London.

Hansen, V., 1966. Biller, 22. Traebukke. *Danmarks Fauna.* Copenhagen. (Text in Danish.)

Kaufmann, R.R. Uhthoff-, 1946. The distribution of *Prionus coriarius* L. (Col.: Cerambycidae) in Great Britain, *Entomologist's mon. Mag.,* **82**: 251-252. One map.

—, 1948. Notes on the distribution of the British Longicorn Coleoptera, *Ibid.,* **84**: 66-85.

Klausnitzer, B. & Sander, F., 1981. *Die Bockkäfer Mitteleuropas.* Wittenberg Lutherstadt.

Kloet, G.S. & Hincks, W.D., 1977. *A check list of British Insects,* **11**(3), Coleoptera and Strepsiptera: 70. 2nd ed. London.

Lameere, A., 1913. *Coleopterorum Catalogus,* **52**, *Cerambycidae: Prioninae:* **72** *in* Junk, W. and Schenkling, S. Berlin.

Martyn, T., 1792. *The English Entomologist,* pl.24, f.4. London.

Moffet, T., 1658. *Insectorum Theatrum.* Posthumous edition.

Nash, D.R., 1976. Some interesting Coleoptera from North-East Essex, *Entomologist's Rec. J. Var.,* **88**: 39-43.

Villiers, A., 1978. *Faune des Coléoptères de France,* **1**. Cerambycidae. Paris.

Polistichus connexus Fourc. (Col.: Carabidae) at light in suburban West Kent

Four specimens of this very local uncommon ground beetle flew to my m.v. lamp on the warm night of 3rd August 1990 — a most unexpected and remarkable occurrence. Its British headquarters used to be the Isle of Sheppey, where it was occasionally plentiful during the last century (cf. Fowler, *Col. Brit. Isl.* **1**: 147); but its recorded range extends from Dorset to Norfolk, chiefly on and near the coast. I have seen no published record of *Polistichus* for West Kent, but have myself taken it in the extreme east of the vice-county: Isle of Grain, May 1935, two in different spots under stones in a pasture field. Nor have I heard of recent finds in the Thames Estuary area, but it has occurred on the coast of East Sussex in later years. The sole inland county from which it is known is Berkshire: Donisthorpe (1939, *Pre. List Col. Windsor Forest*: 20), records two from roots of elm trees (14.v.24), and I have found odd specimens there (the Great Park) from time to time in the late 1930s and 40s in similar situations, but never since.

One may speculate on the origin of the Charlton beetles. As far as we know, the only previous capture anywhere near London was of a single individual on the Chingford side edge of Epping Forest by the late H.W. Forster in the 1940s (I believe, unpublished) — possibly a straggler from the Essex coast. The occurrence of four examples is evidence of local breeding. There are, indeed, certain restricted spots on the south bank of the Thames a good two miles distant where a colony might conceivably exist; being difficult of access, they are perhaps sufficiently undisturbed. It is hard to imagine *P. connexus* flourishing, in present conditions, at any nearer site. Has it, then, spread up the Thames from the estuary region in very recent years? Or has it always been present in my area but never seen until now? Or has it just established itself in one of the parks at Charlton (and if so, how?), as it did in Windsor Park for a time? All three alternatives seem about equally implausible.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE) 7QG.

Metoecus paradoxus L. (Col.: Rhipiphoridae) in London (Middlesex).

I found a moribund male of this widely distributed but rarely encountered beetle on my garden path on 14th August 1990. There are no subterranean wasps' nests in the immediate vicinity though several neighbours have nests in their lofts. Mr A.A. Allen's notes (1984, *Ent. Rec.* **96**: 184; *ibid.* **100**: 93) suggest that the nearest to London the beetle had previously been recorded was by Mr Ford from his loft in Bexleyheath, Kent. The same record confirms Fowler & Donisthorpe's finding (1913, *Coleoptera of the British Islands* **6**: 299) that the beetle is not confined to subterranean wasps's nests as even recent standard works of reference still suggest.— K.G.V. SMITH, 70 Hollickwood Avenue, London N12 0LT.

CONTINUED NOTES ON A NORTH DORSET COLONY OF THE MEADOW BROWN BUTTERFLY *MANIOLA JURTINA* L.

RUPERT D.G. BARRINGTON

Old College Arms, Stour Row, Shaftesbury, Dorset.

TWO previous articles (*Ent. Rec.* **96**: 259-263 and **99**: 97-102) have discussed variation in an exceptional colony of *M. jurtina* from an area of hay meadow in the Blackmore Vale of North Dorset. The following continues the observations up to the 1989 season and, after nine years of more or less intensive study of the colony, a few conclusions are drawn regarding the extent of variability of this population.

In the last article reference was made to a population study conducted in the area and further details are given below.

Population census

The population size was assessed during 1985 using the mark - release - recapture technique (details of method and statistical analysis of raw data are given by Ford, 1951). Windsor & Newton picture varnish was used to mark specimens, a spot being applied to a different area of the wing each day so that the previous date/s of capture of recaptured specimens could be recorded. The technique requires a well confined colony. The accompanying photograph of the area shows that hedges bound the fields on three sides, the fourth side being a garden and buildings.

Fig. 1 shows the change in daily population size through the season and Fig. 2 the changing proportions of the sexes. The graphs show a long trickle of males emerging in late June and a large burst of female emergence in the second week of July coinciding with the population peak on 13th July. From Fig. 1 this peak is very marked as it is when observed in the field (although the peak was some ten days early in 1989).

Analysis of daily population size gave a total of about 13,500 individuals. Certainly on sunny days in 1985 very large numbers of butterflies rose from the grass as one walked through (often after catching the day's random sample of specimens for marking — a small proportion of specimens seen — I would be surprised to find over 100 specimens in my boxes), and this figure is probably not far from the mark. After a series of good summers, 1985 produced the highest population of the species in the nine years of study from 1981 to 1989, although numbers in 1989 may have approached this figure.

Regarding the sex ratios, *jurtina* is well known to be a species that carries the "male first" emergence pattern to an extreme. I have reared a brood in which all males have emerged before the first female, although this pre-female emergence usually seems to be more in the region of 75% of the males. One would imagine that some males might die before having the opportunity to mate. Assessing length of life is difficult, but in the present

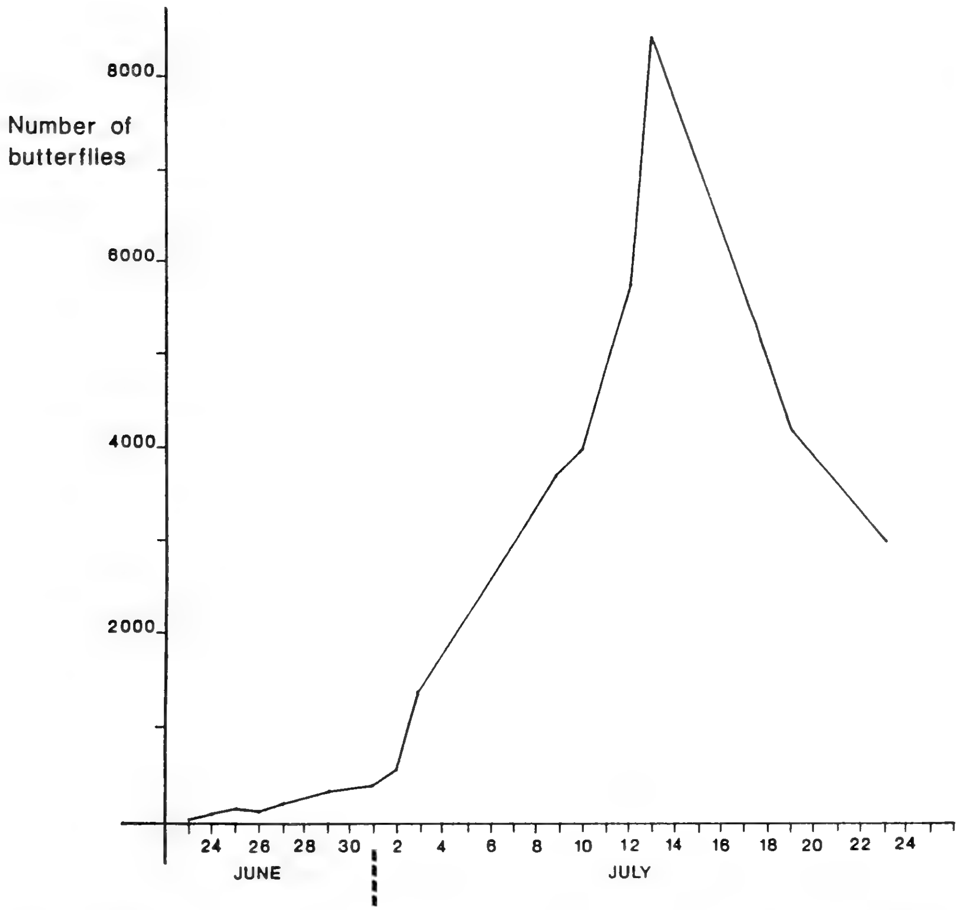


Fig. 1. Population of *Maniola jurtina* in a North Dorset colony during 1985.

study the longest time between initial marking and subsequent recapture of a specimen was 17 days; this for a female. In captive conditions males live for about eight days, so almost certainly some of the earliest males will never meet a female.

The seasons of 1986 - 1989

In mid-June 1986 the fields were cut unexpectedly early for hay. At this time the first males are emerging and most of the population would be pupae or large larvae. Cutting at this time must destroy these stages in some numbers, especially with the practise of cropping the grass tight like a lawn (in the breeding cage although some larvae pupate at the base of the grass stems a fair proportion will pupate several inches up the stem and would be vulnerable). However, *jurtina* has remarkable powers of recovery and the population the following year was probably not far below average.

It has sometimes been stated that *jurtina* will rarely cross a hedge. I now feel that this statement needs qualification. Whilst *jurtina* seems to be a

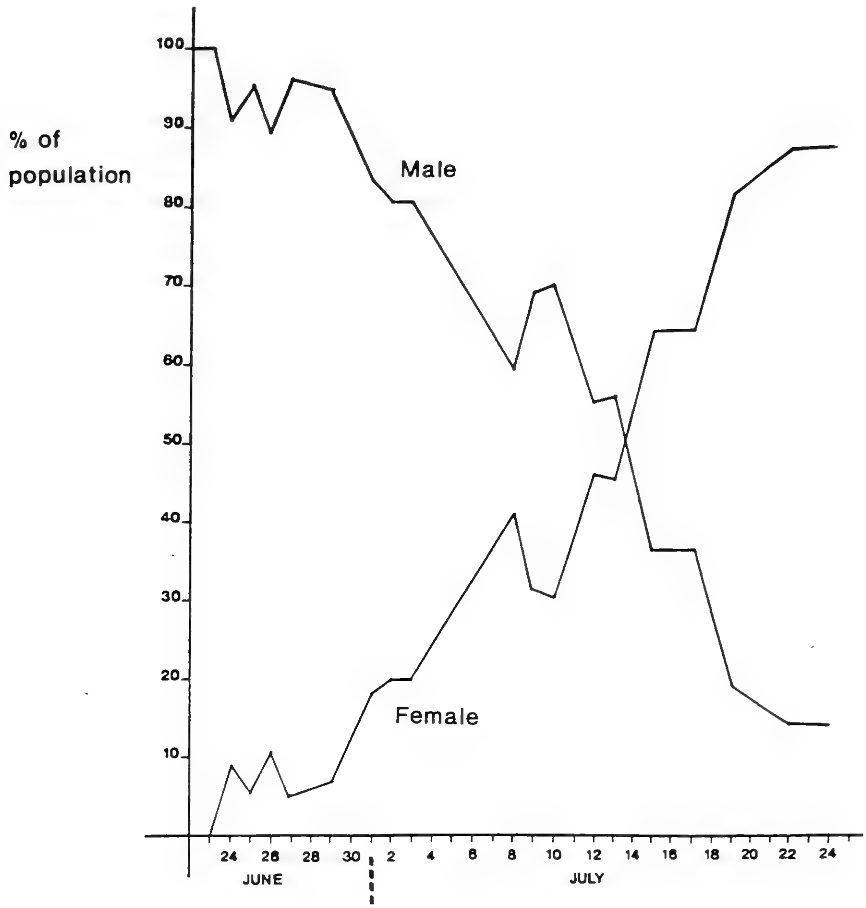


Fig. 2. Male/female distribution of *Maniola jurtina* in a North Dorset colony during 1985.

basically sedentary insect and a hedge will undoubtedly provide some sort of barrier which they will not often cross if conditions in the area are favourable (ie plenty of flowers), when conditions are unfavourable (eg a newly cut field with few flowers) the butterflies become more restless. In this state they are often to be seen crossing hedges to reach new fields where they will lay eggs and search for flowers.

A new area was required in 1986 as our fields would be of no use until the following season. Most of the meadcws locally are cut early, but near a woodland half a mile away a beautiful spot was found. Normally well grazed and with *jurtina* sparse, this year grazing had been relaxed with only four Jersey cattle and two horses in the two acre field. The grass was long in parts with dense stands of thistles, and *jurtina* numbers had exploded. The best area was the sloping end of the long, rectangular field backing onto the woods. With the majority of the thistles it was also sheltered but still had the sun until about 6pm. This was the most attractive situation in which I have been fortunate to look for butterflies. The very English scenery of old oak

woodland and meadows in all directions, a few farm buildings and a field lined by huge oaks, maple and hawthorn was augmented by Silver-washed Fritillaries and White Admirals visiting a thistle stand in a damp corner of the field.

I was able to work the area for several days in July and the first aberration, taken on the 3rd, was a female ab. *antiaurolancea* Leeds with the forewing fulvous of the upperside broken into bands by darker scaling. The 10th was a sultry day and the best method of collecting was to stand still in the centre of a large thistle patch and quietly observe the specimens coming in to feed. A fresh male ab. *anticastanea* Leeds was taken in this way. This form has the fulvous of the underside of the forewings of a deep brick-red colour and the wing fringes very pale. The following day was warm with patchy sun, and a strongly marked female ab. *fracta* Zweiglt was quickly spotted at rest on the ground. Several hours of further search revealed nothing when, with the shadows of the oak trees beginning to stretch across the thistles bringing an end to the best collecting conditions, I saw a butterfly that, even from 40 feet, was clearly visible as a gynandromorph. It flashed a curiously incomplete area of fulvous as it flew towards me. It proved to be a perfect example, halved on the upperside but with the apical spot on the underside of the male half mainly female. A further *antiaurolancea* female was taken on 13th. In another local field with a fair population of *jurtina* a number of forms were taken over the next two days including a good female *fracta,* a female ab. *addenda* Mousley and a male ab. *postmultifidus* Lipscomb, a form rather indistinct in the male despite being a striking female variety.

1987 and 1988 were disappointing years with seemingly continuous wind and rain during the emergence period, and time was very limited. The only specimens of note from the usual area in 1987 were an asymmetrical female *antiaurolancea* with forewing fulvoüs reduced on one side, an asymmetrical female *postmultifidus* with two darkened veins across the median band of one hindwing, a female ab. *antiobscura* Leeds with the forewing fulvous dusted over with ground colour and an unusual colour form of the female underside. The closest description to this aberration (of which three female examples have been taken over nine years) that I have come across is that of ab. *antiultrafulvescens* Leeds (Leeds, 1948-9). It is described as having *the forewing basal area of a pronoucedly darker but somewhat brightish-brown colour, occasionally with a reddish tinting.* The present examples are certainly reddish, but additionally the forewing fulvous is restricted to a smaller area by dark scaling, the ground colour is a rich reddish-chocolate and the hindwing median band is of a pure grey with little of the normal flecking of darker scales. I have not seen this form anywhere else and so assume it to be a rare aberration. A more appropriate name may simply be *ultrafulvescens.*

Two dull mornings were available for collecting in 1988. On 10th July, at the point when lethargy was beginning to set in after two or three hours of

Fig. 3. The *jurtina* meadow st Stour Row, Dorset, June 1989.

damp, fruitless effort trying to net the *jurtina* that were shooting past on the strong wind, I scarcely bothered to examine a female on a flower head exhibiting a typical upperside. It turned out to be the most extreme *fracta* I have ever seen. Also an unusual female was taken with the light central hindwing band invading the darker basal area (Fig. 4). One of the few butterflies feeding from knapweed on the 15th was a female with homoeosis on the underside of one hindwing, this consisting of a thick streak of orange scales.

Fine, warm and dry conditions made 1989 a more productive year, advancing the emergence by ten days with the population peak being at the start of July. Numbers were probably up on the previous two years although it was difficult to assess the 1987 and 1988 populations as the adults rarely fed from flowers in any numbers, when it is easiest to observe them.

The first day in the fields was 17th June and there were good numbers of butterflies, mainly male, on the wing, when I would normally expect to see only the first few emergences. Little variation was evident. The following day an interesting observation was made. At 10am, in a part of the field well grazed by a horse, many male *jurtina,* evenly spread over the short grass, were flying low and slowly, landing frequently but not to feed. This is quite different from their normally frenetic flight between flower patches. They appeared to be searching for newly emerged females. Although at this time of year males far outnumber females, the two sexes were feeding from flowers in equal numbers, most males being involved in the searching flight. This phenomenon was only noticeable in the morning,

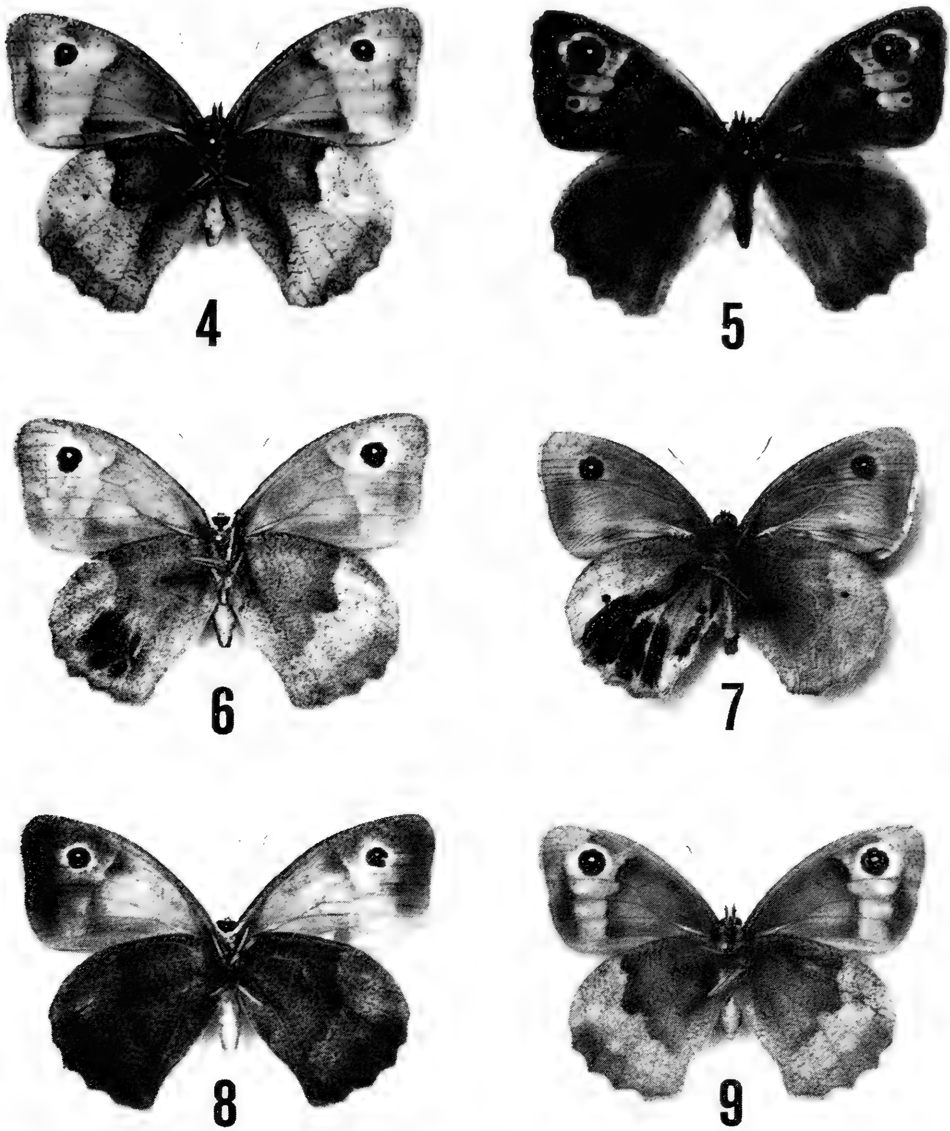
after which presumably, the day's new emergence is almost over. With up to 100 males visible from a standing position this behaviour was quite striking. Once recognised in the short grass it could be seen to be happening over all the area. I have since heard that work in Holland has confirmed this to be mate-searching behaviour. The only aberration of note was a lightly marked male *postmultifidus* from a knapweed head.

Some free time in the week starting 24th June coincided with the only poor weather for weeks or months either side. The 24th produced a male ab. *atrescens* Leeds flying over knapweed, the hindwings being strongly black. A very worn male ab. *subtus - albida* Silb. was seen feeding from bramble in the hedge. This was the fifth example of the form (four male, one female) seen in the area over the nine years. The weather was windy and wet until the 28th which, although drizzling was at least still, but cold. The only *jurtina* seen were those kicked out of the grass, which were examined until the net became so wet that I risked damaging any captures. A fresh female ab. *fracta* was taken.

In previous years I have seen *jurtina* captured on the wing by the swallows that breed in some old stables at one end of the fields. On this cold day, after an hour of looking at the browns, I was surprised by a swallow that swept past no more than four feet away to capture a *jurtina* I had just disturbed from the grass. This bird returned every few minutes (doubtless having fed a chick) continually taking butterflies almost in front of my nose. Half an hour later another swallow twigged on to this unexpected bonus and did the same. It was a rare privilege to see, at such close quarters, their aerial acrobatics. If they missed a specimen first time around they would turn at an acute angle with little loss of speed and come back for it. I saw few butterflies escape and one wonders how much use the deflective apical spots can be against such an adversary. On hot days when *jurtina* are flying of their own accord, five or more swallows may be seen racing over the grass and flowers. Their chicks must be raised on a diet high in Meadow Browns.

The 30th was, at last, a fine day and *jurtina* were up and feeding in good numbers. They were best worked by walking slowly from one flower patch to another using the net only to examine something that looked unusual. This is an easy method except that *jurtina* appears to have a sense of hearing. Some moths are known to have hearing structures but their existence in butterflies is less well known. When near a patch of flowers covered in feeding *jurtina* a slight movement of a foot (invisible to the butterflies) may cause a trapped grass stem to snap audibly, and most butterflies will immediately take off. The hearing sense of a moth is, at least partly, related to the need to hear approaching bats, but its use is less clear in butterflies.

A good female ab. *crassipuncta-addenda* Leeds (Fig. 5) was taken with the apical spot considerably larger on the upper than underside, and a female with a black suffused patch on the underside of one hindwing (Fig. 6). This appears to be a partial expression of *atrescens* (a similar specimen



Figs. 4 - 9. Aberrations of *Maniola jurtina* L. 4. Female with reduced hindwing basal area, Stour Row, Dorset, 10.7.1988 (RDGB). 5. Female *crassipuncta-addenda* Leeds, Stour Row, 30.6.1989. (RDGB). 6. Female with partial expression of *atrescens* Leeds. Stour Row, 30.6.1989 (RDGB). 7. Male, unnamed aberration, Gomshall, Surrey, 28.8.1944 (J.C.B. Craske). 8. Female *atrescens* Leeds. Stour Row, 2.7.1989 (RDGB). 9. Female showing homoeosis, Stour Row, 8.7.1989 (RDGB).

taken by J.C.B. Craske in 1944 is illustrated for comparison (Fig. 7) — this does not seem to be an expression of *atrescens* but may be a form of homoeosis or some other very unusual unevenly patterned aberration). Just how *atrescens* is inherited is not clear but it has some lethal effect, and captured specimens almost invariably exhibit some degree of wing

deformation (of the 12 or so specimens exhibiting melanism that have been seen in this locality, only one was without any deformity). I have found specimens with one side or one wing more blackened than the others (such insects have usually been very badly deformed), although the distinct black patch of this specimen is a form I have not had before. The upperside of the present specimen is of a washed-out grey-black with reduced forewing fulvous, characteristic of all the female *atrescens* I have seen and there is a small deformity in the black area, so there seems little doubt that this insect shows an unusual expression of the *atrescens* complex. Another female taken in flight was transitional to *atrescens* but with crumpled wings. She laid a few ova but no larvae have survived. A male ab. *sinis-anommata* Vty, and a female transitional to *fracta* were observed.

A warm day on 2nd July produced an extreme female homoeotic form with orange streaks over half of the underside of one hindwing. This is almost certain to be an inherited aberration (five such examples have been taken, all showing orange streaks on the underside of the left hindwing). The 8th July was the last day I was able to work the area. Conditions were perfect and butterflies very abundant. In a two hour search several aberrations were found including a good female *atrescens* (with a small "shot-hole" in one forewing) (Fig. 8), a female *antiobscura* with virtually no upperside fulvous, a well marked female *addenda* and a female showing hindwing homoeosis with brown streaks on the underside of one hindwing (Fig. 9).

Some conclusions

Almost every form of variation known in *jurtina* has occurred in the hay meadows of this area of North Dorset. This includes spotting variation with extra spots on all wings and both surfaces, reduced, absent or enlarged apical spots (the specimens referrable to ab. *crassipuncta* Leeds that have been taken are not extreme and other areas are known to produce more striking examples). Ground colour forms have varied from creamy through a range of insects paler and darker than type to the heavily melanic *atrescens*. The forewing fulvous varies from white to a reddish-brown and in extent on the upperside of the female from extensive with a hindwing band to total absence. The hindwing "banded" aberrations with darkened veins across the median band of the underside occur as two forms: *fracta* with a single heavy band, and *postmultifidus* with several, but lighter, bands (they do not appear to be related). The aberration *postaurolancea* Leeds with all veins darkened (Russwurm, 1978, pl.39, Figs. 7 and 8 as opposed to Fig. 6 which has since been separated and named *postmultifidus*) has not been found. To my knowledge it has only ever been seen in two downland localities, in one of which it is now a great rarity. I have no information on the other area. Homoeotics and a gynandromorph have been taken, and the whole range of bleached ab. *partimtransformis* Leeds.

The only major aberrant form that has not been found is albinism. There

are three albino types: white, grey and "gold". All three have sometimes been found as recurrent forms. Having not found any in the hay meadows after nine years I would be surprised now to do to as it is likely that the necessary aberrant genes simply do not exist in the population.

References

Barrington, R.D.G., 1984. Notes on variation in a North Dorset colony of the Meadow Brown: *Maniola jurtina* L. *Entomologist's Rec.J. Var.* **96**: 259.

— , 1987. Further notes on variation in a North Dorset colony of the Meadow Brown butterfly (*Maniola jurtina* L.). *Entomologist's Rec. J. Var.* **99**: 97.

Ford, E.B., 1951. The experimental study of evolution. *Report of the Brisbane meeting of the Australian and New Zealand Association for the Advancement of Science.* XXVIII: 143.

Russwurm, A.D.A., 1978. *Aberrations of British Butterflies.* Classey.

Hazards of butterfly collecting — Yemen, 1981.

It is an acknowledged, world-wide hazard of butterfly collecting that it is often difficult to make local people understand why one is engaging in such an activity. Only in places where money is being made from butterflies is it possible to escape questions on the subject, and the questions are usually at their most intense where one's familiarity with the language is weakest.

I was therefore very happy to visit a remote hot spring in Yemen in the company of an American friend whose mastery of Arabic much surpassed mine. He had long wished to swim in the covered baths with hot, sulphurous water. They had been used by generations of the Imams who had kept Yemen isolated till the revolution of 1961. We were well received by a group of men at the usual soft drink store, and as so often in Yemen the drinks were on the house. The genuine hospitality and courtesy of rural folk in Yemen was not changed by the revolution. After the necessary pleasantries, my friend descended to swim in the ancient, dungeon like building. I elected to check for butterflies first and to swim later. There was good butterfly collecting to be had. It was in one of those places in Yemen where many African and endemic species are found that do not occur elswehere in Arabia.

Three hours later I approached the bath house, waving to my friend and his new found Yemeni entourage.The result was somewhat unexpected — the unmistakable sound of Kalashnikov rifles being cocked. I smartly altered course, waved, smiled and approached the group. I had almost blundered into a very dangerous situation. It was now women's bath-time, and Yemeni men guard their women well. Had I opened the door, that would have been it. But there were no hard feelings — an excusable error of judgement, fortunately stopped in time.

What was I doing with this thing (my butterfly net)? I seized on the opportunity of having a good translater on hand to expound on the marvels of the Yemeni butterfly fauna and its extremely interesting zoogeographical

implications. The highest peaks of Yemen have Palaearctic butterflies like the Small Copper (*Lycaena phlaeas*) and the Bath White (*Pontia daplidice*) as well as many Afrotropical species and quite a few species only found in Arabia or even just in Yemen. I showed them one or two Yemeni endemics: "Only found in Yemen — nowhere else in the world!" Murmurs of approval indicated that the impromptu lecture went well; there were several questions from the audience. So many Yemeni men have worked abroad that the zoogeography was seized upon. Cola and Fanta flowed freely, still on the house (cold beer, alas, is in very short supply in most of Arabia). We also talked about local ecology and climate and its relation to butterflies. I think they were impressed with my obvious dedication and knowledge, but the summing-up of the senior citizen present was still sobering: "Well, that was very interesting. But, you know, it is very funny with you *nasrani* (Christians). You all seem to know an incredible amount about practically nothing. It is very different for us. We know a something about practically everything".— TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Enargia paleacea Esp. (Lep.: Noctuidae) in Kent.

A further specimen of this insect, only the second to be reported for West Kent (vice-county 16) in over a century, came to my garden m.v. light on 29th July 1990, the previous example being at the same location on 15th July 1987 (*Ent. Rec.* **99**: 267).

Curiously this latter was somewhat ambiguously reported in the annual review by R. Bretherton and C. Chalmers-Hunt of immigrants (*Ent. Rec.* **100**: 227) the date being stated as 15/16.7, for elsewhere in the review where two dates are so given it indicates that specimens were observed on both dates, and on dates between that they are not consecutive. I wish to reiterate that in 1987 I observed only one specimen; the date 15th July.— B.K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

Vintage Watkins and Doncaster

Has anyone any interesting recollections regarding the renowned firm of Watkins and Doncaster, pre-war? What species of butterfly was depicted on the hanging sign — was it Swallowtail of Camberwell Beauty? A thrilling shop for a youngster to visit!— A. ARCHER-LOCK, 4 Glenwood Road, Mannamead, Plymouth, Devon.

Third brood Holly Blue butterfly?

I would like to record a sighting of the Holly Blue, *Celestrina argiolus* L., on 16th October 1990 near East Malling, Kent. In view of the exceptional weather this year, it seems likely that this was a third generation individual.— M.A. EASTERBROOK, 26 Orchard Grove, Ditton, Ayleford, Kent.

LEPIDOPTERA OBSERVED ON THE ISLES OF SCILLY IN 1989.

R.J. HECKFORD

67 Newnham Road, Plympton, Plymouth PL7 4AW.

RECORDS of lepidoptera from the Isles of Scilly up to about 1980 were collated by Agassiz (1981). In 1987 I published a list of certain species I had found in May 1986 (Heckford, 1987). Although no doubt other entomologists have visited the area in the last decade I do not know of any additions to those lists.

A further opportunity to investigate the lepidoptera occurred between 19th August and 1st September 1989 when I enjoyed a family holiday on St Mary's. The garden of the house where we stayed was very small and dominated by a narrow leaved willow which was covered in honeydew for the whole of our stay. This attracted several *Vanessa atalanta* (Linnaeus) and *Pararge aegeria* (Linnaeus) during the day and at night quite a number of macrolepidoptera including *Mythimna l-album* (Linnaeus) and *M. unipuncta* (Linnaeus).

I noted seven species of microlepidoptera not included in Agassiz's list and three macrolepidoptera of which there are few Scillonian records. These and some other species are listed at the end of this paper. An asterisk denotes a species not previously recorded from the islands as far as I am aware. The words in brackets are comments from Agassiz's list.

Also on 20th August I found two larvae and considerable evidence of feeding in seedheads of *Jasione montana* on a wall in Hugh Town, St. Mary's. The larvae appeared to agree with the description of *Cochylis pallidana* Zeller, which would be a new record. Unfortunately I failed to rear them and so cannot confirm my tentative identification.

Selected species

**Psychoides filicivora* (Meyrick): Porth Minnick. St Mary's, several larvae on *Asplenium marinum* 29.viii, moths bred; Higher Town Bay, St Martin's several larvae on *A. marinum* 31.viii, moths bred.

**Tinea dubiella* Stainton: Hugh Town, St Mary's, one adult 19. viii, confirmed by dissection.

Oinophila v-flava (Haworth): Old Town, St Mary's. Larvae under dead bark of *Pittosporum crassifolium* 20.viii, moth bred. In May 1986 (Heckford, 1987) I found larvae in similar circumstances in the same area suggesting the species is bivoltine on Scilly.

**Bedellia somnulentella* (Zeller): Holy Vale, St Mary's. A few larvae one pupa and several empty mines on *Calystegia sepium* 24.viii; near Porthloo Beach, St Mary's a few larvae and several empty mines on *C. sepium* 26.viii.

Coleophora argentula (Stephens): near Porth Minnick, cases not uncommon on *Achillea millefolium* 24.viii. Not recorded from St Mary's by Agassiz.

Scrobipalpa obsoletella (Fischer von Röslerstamm): Porthcressa Beach, St Mary's one adult 24.viii; Porthcressa Beach a few larvae in stems of *Atriplex* sp. 1.ix; New Grimsby Harbour, Tresco, many larvae in stems of *Atriplex* sp. 1.ix. This species was omitted in error from Agassiz's list, Richardson & Mere (1958) having described it as common.

**Blastobasis lignea* Walsingham: Hugh Town, one adult at actinic light 27.viii.

**Blastodacna hellerella* (Duponchel): Bar Point, St Mary's, larvae in *Crataegus* berries 26.viii, moths bred.

**Cydia janthinana* (Duponchel): Pelistry Bay, St Mary's, larvae in *Crataegus* berries 26.viii, moth bred.

**Sitochroa palealis* ([Denis & Schiffermüller]): Porth Minnick, one larva on *Daucus carota* 24.viii and another on 29.viii, moth bred.

Emmelina monodactyla (Linnaeus): Gugh, several larvae on *Calystegia soldanella* 29.viii, moths bred. A foodplant not previously noted in the British Isles.

Xanthorhoe spadicearia ([Denis & Schiffermüller]): Hugh Town, three at actinic light 21.viii. (One, St Mary's, 30.v.74.)

Eupithecia phoeniceata (Rambur): Hugh Town, one at actinic light 19.viii. (One, Tresco 17.ix.74.)

Plusia festucae (Linnaeus): Hugh Town, one on *Buddleia* bloom 28.viii. Recorded as "Rare" by Agassiz but Richardson & Mere (1958) state "Rare Tresco, uncommon St Mary's."

References

Agassiz, D.J.L., 1981. *A revised list of the Lepidoptera (moths and butterflies) of the Isles of Scilly,* 20pp., 1 map. Isles of Scilly Museum Association [Publication No. 14].

Heckford, R.J., 1987. Lepidoptera recorded from the Isles of Scilly in May 1986. *Entomologist's Rec.J. Var.* **99**: 268-270.

Richardson, A & Mere, R.M., 1958. Some preliminary observations on the Lepidoptera of the Isles of Scilly with particular reference to Tresco. *Entomologist's Gaz.* **9**: 115-147 2 pls.

Mate competition in *Noctua pronuba* (Lep.: Noctuidae) Large Yellow Underwing.

At dusk in July 1988, near Lewes in East Sussex, I saw a fairly worn *Noctua pronuba* fly towards a small hawthorn bush and settle on it about 1.5m from the ground. It began to run urgently among the twigs. About 30cm from where the moth had landed I then noticed a newly-emerged female *pronuba* together with a male in fresh condition which was attempting to mate with her. All its attempts were unsuccessful, apparently because it persistently approached at the wrong angle, facing in the same direction as the (compliant) female. Eventually the latecoming male found the female

and literally shouldered her incompetent suitor out of the way by brute force before coupling almost instantaneously with her. I wondered whether, being fairly worn, this male had had previous experience of mating.

Preseumably similar little dramas happen frequently, but are seldom witnessed.—ROY LEVERTON, Whitewells, Ordiquhill, Cornhill, Banffshire AD45 2HS.

Separation of *Semiothisa notata* Linnaeus and *S. alternaria* Hübner, the Peacock and Sharp-angled Peacock moths (Lep.: Geometridae)

Previous authors state that the shape of the triangular sub-apical patch on the upperside of the forewings distinguish these species. Although this is usually reliaable for specimens in good condition it is not always useful as a sole means of separation, particularly for worn individuals. Reference to the underside markings reveals additional characters which help identification and these are shown in the accompanying figure.

In *S. notata* the dark inter-nervural markings at the termen form elongated streaks which are broken only by the nervures themselves. In *S. alternaria* these markings are reduced to small dots except at the terminal indentation where they form bold blotches. Superficially these bold marks appear to be an extension of the dark wing fringes at this point, thus enhancing the sharply angulated apex characteristic of this species. Further, the forewing discal spots in *S. alternaria* are smaller but more clearly defined than those of *S. notata*.— ADRIAN M. RILEY, Dept. Entomology and Nematology, AFRC Inst. Arable Crops Research, Rothamsted Exp. Stn, Harpenden, Herts AL5 2JQ.

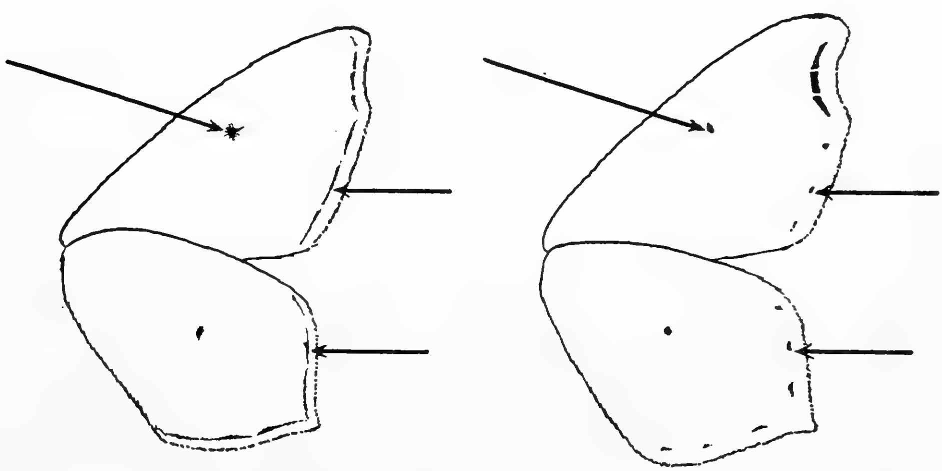


Fig. 1. Semiothisa spp.

S. notata L. *S. alternaria* Hübn.

The Comma (*Polygonia c-album*) apparently feeding on Honey-dew.

This butterfly cannot be classed as a common species in my own neighbourhood, so it is always a pleasure to watch one when it turns up.

Such was the case on Saturday, 8th September 1990, here in the local country park, a warm day with prolonged sunshine interspersed with very short periods of cloud cover. Walking along one of the bridle paths at approximately 13.30 I saw a Comma perched on one of the oak leaves a few yards ahead of me and a couple of inches below my eye level. This had its wings fully open with the tips in contact with the leaf surface. I very carefully approached to within twelve to fourteen inches and was surprised to see the proboscis fully extended onto the leaf surface and being manoeuvred into different positions as though it were imbibing the thin film of honey-dew on the leaf. After a couple of minutes it flew up to another leaf a few feet away but remained on this for only a few seconds before coming back down to another close to the original leaf, where it again resumed the probing activity described earlier.

I observed this Comma at close quarters for a full five minutes and gained the distinct impresssion that it was actually feeding on the honey-dew. A possible contributory factor to this unusual behaviour by this species, may have been the fact that there was virtually no other source of nectar left within the confines of the park at this date, save for a few desultory-looking flowerheads of thistles, though even these were completely devoid of any type of "nectar-seeking" insects.—A.S. BOOT, 38 Balmoral Road, Colwick, Nottingham NG4 2GD.

Worth a dig

Much has happened to *Lithophane leautieri hesperica* Bours. since the mid-fifties when the late Dr H.B.D. Kettlewell and the late Robin Mere wrote of their exploits in the Isle of Wight with the then termed *L. lapidea* (Hübn.). The moth's subsequent dramatic spread is well chronicled in MBGBI Vol. 10 but when, in 1959, Ron Parfitt and I recorded the first Dorset specimens (*Ent. Gaz.* **11**: 15-17) little did we realise that thirty years later we would have the moth commonly at light in our respective gardens in Hampshire and Berkshire.

Although many lepidopterists must by now have bred *leautieri* ab. ova the only note that I have found referring to the cocoon in the wild is Haggett's 1968 paper (*Proc. Brit. ent. nat. Hist. Soc.* **1** (2): 73-76). Haggett, who refers to Wightman's belief that the cocoon was spun on the tree, also cites the finding by Goater and Lorimer of a cocoon with an empty pupa on the bark of a cypress.

This seemed an invitation to do some fieldwork, particularly so, as MBGBI points out, casualties may be high if the cocoons in which the larvae rest for several months before pupating are kept too damp.

A tall isolated *Cupressus macrocarpa* on the roadside half a mile from

home had long looked inviting and, though rather under the public gaze, seemed worth a try. On 19th September I sought permission from a nearby resident, then dug steadily round the trunk. The ground was very dry and the earth came up in small nodules, one of which looked rather cocoon-like. It was well covered with tiny soil particles though flexible to the touch and required gentle, but firm, tearing to open it. An old, but well preserved, pupa was inside. The end result from this one tree was four old cocoons and two fresh ones — all were a few inches down in the soil and could have easily been overlooked among the soil nodules.

On 26th September I tried in the opposite direction and, with the permission of the vicar, dug round two *Chamaecyparis lawsoniana* growing in his churchyard. The ground was much harder than at the *macrocarpa* site but an old cocoon was soon unearthed. Shortly afterwards a fresh pupa was exposed with no sign of a cocoon, but by feeling carefully round the base of the trunk one was found attached to the wood. I had inadvertently sliced its end off and in so doing had ejected the pupa.Thus forewarned I continued digging round the trunk, taking care every few inches to feel against the wood. Two more cocoons were found so attached and these had coatings of small pieces of dead *Chamaecyparis* foliage as well as soil particles. From these two trees came five full and three empty cocoons. From both sites all cocoons were similarly shaped — a regular ovoid measuring c.25mm x 15mm. The first moth emerged at 8.25 pm on 30th September and took fifty minutes from the time of eclosion to the lowering of its wings.

I will be recounting nothing new to those who have already tried this exercise but for others who may still require one or two bred *leautieri* without having to wait too long for results, a dig could prove worthwhile.

(For those not requiring the moth, a dig in the winter months would still reveal old cocoons in situ and recording these against named tree species might produce evidence of foodplants so far unrecorded in this country. I suggest that anyone trying this line of investigation should, unless they are very experienced horticulturalists, seek the help of a tree specialist. Mine was invaluable when explaining *Cupressus, Chamaecyparis* and their hybrid genus *Cupressocyparis* — but even she shied at tackling the cultivars!)

On 8th October I tried another tack and, furnished with a permit from BBONT, investigated *Juniperus communis* L. on the Berkshire Downs. In the morning results were nil, so finding a clearing among the junipers I had a break. For company there was a party of busy long-tailed tits and then an unexpected weasel who rushed here and there under the bushes. As I walked back down the slope to recommence digging, a microlite aircraft flew over very low and the pilot waved as if in encouragement. But the afternoon produced very little — two *Carabus violaceus* L. and just one lepidopterous pupa which was adorned with long filaments of *Cordyceps*. Even so one's hopes were raised, but there was no sign of a cocoon and the

cremaster was wrong for *leautieri*. Digging around juniper, as those who have tried will know, is very different from working textbook *macrocarpa*. Most of the bushes need to be crawled under and the acicular leaves have a great tendency to go down the back of the neck. Then, as the hours go by, one remembers that the Berkshire Downs are noted for their abundance of soil nodules (every one of which mimics a *leautieri* cocoon) and you resolve to try another day. Nevertheless, the larva *has* been found on a garden *Juniperus* (David Agassiz in MBGBI) and, perhaps most encouraging, it *was* in this isolated spot that David Young took one *leautieri* on 17th October 1986. I like to believe that it wasn't the only one to fly in this quiet valley.— B.R. BAKER, 25 Matlock Road, Caversham, Reading RG4 7BP.

Rothamsted Farmland light trap network: interesting Lepidoptera records for June, 1990.

As stated by Woiwod, Riley and Townsend (*Ent. Rec.* **102**: 200-201), notes of unusual Lepidoptera records from the farmland light trap network on the Rothamsted Estate in Hertfordshire will be published in this journal at regular intervals. The following are noteworthy observations for June 1990:

Advanced flight periods were less evident during June as the effects of the warm spring were partially counteracted by relatively cooler weather. However, *Idaea seriata* Schr., *I. dimidiata* Hufn., *Cosmia trapezina* Linn. and *Mythimna ferrago* Fabr. were all caught about a fortnight before the expected emergence (Skinner, B. (1984) *Colour Identification Guide to Moths of the British Isles*. Viking, Harmondsworth).

A dark form of *Calliteara pudibunda* Linn. conforming to ab. *concolor* Stdgr was caught on the 15th June and had not previously been recorded from Harpenden. A further first record for the area was *Idaea vulpinaria* H.-S., one of which was caught on the 29th. A single individual of *Gastropacha quercifolia* Linn. was recorded on the 18th. This species was trapped frequently on the Rothamsted Estate during the 1930s and '40s but had not been seen since 1949.

Several assumed migrants were caught, including small numbers of *Udea ferrugalis* Hb. and one *Phlyctaenia perlucidalis* Hb. The latter is usually associated with fenland in Huntingdonshire and Cambridgeshire and coastal localities on the east coast between Yorkshire and Kent (Goater, B. (1986) *British Pyralid Moths*. Harley, Colchester). The Harpenden specimen was trapped on the 24th and further singletons were caught in the Rothamsted Insect Survey light traps at Lydd, Kent (Site No. 462, OS grid ref. 044 203) on 22nd June and Cockayne Hatley, Bedfordshire (Site No. 336, OS grid ref. TL 253 494) on 11th July.

Thanks are extended to A. Heath for operating the trap at Lydd.—
MARTIN C. TOWNSEND and ADRIAN M. RILEY, Dept. Entomology and Nematology, AFRC Inst. Arable Crops Res., Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

HOST RECORDS OF SOME WEST PALAEARCTIC TACHINIDAE (DIPTERA)

T.H. FORD[1] and M.R. SHAW[2]

[1] *39 Ashbury Drive, Sheffield, S8 8LE*

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The following list is the result of numerous rearings of Tachinidae by ourselves and various correspondents over the past twelve or thirteen years. Many of the records are of previously recorded hosts, but serve to confirm earlier records which in some cases are rather sparse. Others appear not to have been recorded in the past.

The nomenclature and arrangement of the Tachinidae is according to Herting (1984), except for the genus *Phytomyptera* Rondani which follows Andersen (1988). The lepidopterous hosts are listed according to Kloet and Hincks (1972). Unless otherwise indicated:

(i) records are British,

(ii) hosts are Lepidoptera and have been determined by the collector whose initials are given in parentheses at the end of the entry,

(iii) British tachinids were identified by T.H. Ford, but all non-British specimens were submitted to Dr B. Herting for determination by him and by Dr H-P. Tschorsnig.

Under the heading of the tachinid, each entry shows (where full data are available): the number and sex of the parasitoids, which is as far as is known also the number of hosts killed unless the word "brood" is used; the stage at which the host was killed; up to three dates, indicating (a) date of collection of the material, (b) emergence of the parasitoid larva from the host, (c) eclosion of the parasitoid imago, [only two dates = (a) and (c), and only one date = (a)]; the locality (given in full only for the more notable records); the initials of the collector, or collector/identifier if not the same person. The following abbreviations are used in the entries; l. = larva, pp. = prepupa, p. = pupa, a. = adult, b. = brood, em. = emerged. The notes on each species are derived chiefly from Herting (1960).

Tribe EXORISTINI

Exorista fasciata (Fallén). *Zygaena filipendulae* (L.) 2 males, 1 female, pp., 25.vii.76, 27.vii-3.viii.76, Cornwall (M.R.S.); b. of 3 females, pp., 7-8.viii.89, 15.viii.89, Dorset (J.H.P.); *Z. filipendulae* or *lonicerae* (Scheven): 1 male, 1 female, l. or pp., 19.vii.85, 14-20.viii.85, Skye (J.W.); *Arctia caja* (L.): b. of 3 males, 4 females, p., 10.vi.85, 28.vi.85, vii.85, Ayrshire (M.A.H.); *Dasychira fascelina* (L.): b. of 1 male, 1 female, p., 24.vi.60, 31.vii-4.viii.60, Hampshire (E.C.P-C.). Lasiocampidae are the chief hosts of this species, but it has been reported previously from Arctiidae and Zygaenidae. A rearing from Lymantriidae therefore comes as no surprise.

Exorista larvarum (L.). *Trichiura crataegi* (L.). 1 male, l., 29.v.49, 15.vii.49, Huntingdonshire (E.C.P-C.); *Philudoria potatoria* (L.): b. of 3 males, pp. or p., em.ix.34, Argyll (A.M.M.); *Parasemia plantaginis* (L.): 4 males, 5 females, l., p. and pp., 16.vi.84, vii.84, vii-viii.84, Ailsa Craig (I.C.C.); *Tyria jacobaeae* (L.): 2 males, 1 female, pp. and p., 12.viii.77, 25.viii.77, 24.ix.77, Guernsey (T.H.F.). A polyphagous parasitoid of many macrolepidoptera.

Exorista segregata (Rondani). *Zygaena carniolica* (Scopoli): 1 male, pp. or p., xi.73, LEBANON [Jabal Kesrouan] (T.B.L.). Recorded especially from Lymantriidae, Lasiocampidae and Arctiidae: we are not aware of previous records from Zygaenidae.

Exorista grandis (Zetterstedt). *Saturnia pavonia* (L.): b. of 3 males, pp. or p., 22.viii.74, 8.ii.75, Aviemore, Inverness-shire (W.A.E.); b. of 2 males, 1 female, pp., em. 7.vi.70, Roxburghshire (A.B.). *S. pavonia* is the principal host, but records from *Papilio machaon* L., *Inachis io* (L.), *Smerinthus ocellata* (L.) and *Zygaena purpuralis* (Brunnich) also exist.

Exorista sorbillans (Wiedemann). *Minucia lunaris* (Denis & Schiffermüller): 1 female, l., on *Quercus suber,* 9.vi.89, 19.vii.89, FRANCE [Cavalaire, Var] (T.H.F.). Widespread in the subtropics of the Old World and has been recorded from many different Lepidopteran hosts. It is much more polyphagous than *E. grandis,* but the two species are very closely related and difficult to distinguish (B. Herting, personal communication).

Exorista nova (Rondani). *Zygaena carniolica* (Scopuli): 2 females, pp. or p., xi.73, LEBANON [Jabal Kesrouan] (T.B.L.). A specific parasitoid of Zygaenidae.

Parasetigena silvestris (Robineau-Desvoidy). *Lymantria dispar* (L.): 14 males, 15 females and 2 bs of 1 male, 1 female, l., 6.v.87, vi.87, FRANCE [Var] (T.H.F.). A common and important parasitoid of *L. dispar* and *L. monacha* (L.).

Bessa parallela (Meigen). *Yponomeuta padella* (L.): 1male, l., 29.vi.60, 25.vii.60, Kent (E.C.P-C.). Primarily parasitic on larvae of microlepidoptera, especially *Yponomeuta* species, but it has also been recorded from some Geometridae.

Tribe BLONDELIINI

Medina luctuosa (Meigen). *Haltica lythri* (Aubé) (Col.: Chrysomelidae): 1 male, a., 4.viii.79, Burton-on-the-Wolds, Leicestershire (W.M.P.). Apparently confined to Halticinae (Col.).

Medina separata (Meigen). *Adelia decempunctata* (L.) (Col.: Coccinellidae): 1, a., em. 3.vii.87, Holt Heath NNR, Dorset (M.M.B.). This is the second record from *A.decempunctata* that we have, and it has

also been bred in numbers from *Phyllodecta vitellinae* (L.) (Col. Chrysomelidae) from Yorkshire (Ford, 1989).

Compsilura concinnata (Meigen). *Zygaena carniolica* (Scopoli): 3 males, 2 females, pp. or p., ix.73, LEBANON [Jabal Kesrouan] (T.B.L.); *Heterogynis penella* (Hübner): 1 male, pp. or p., 26.vii.84, viii.84, 25.viii.84, FRANCE [Alpes de Haute Provence] (M.R.S.); *Gonepteryx rhamni* (L.): 1 male, p., vi.80, 29.vi.80, 1980, Berkshire (M.R.B.); *Pieris brassicae* (L.): 1 male, p., 2.iv.76, iv.76, 17.iv.76, Yorkshire (W.A.E.); *P. rapae* (L.): 1 female, p., 26.ix.75, 8.vi.76, Lancashire (M.R.S.); *Apatura ilia* (Denis & Schiffermüller) semi-captive culture: 1 male, p., 1983, Gloucestershire (J.McF.); *Aglais urticae* (L.): 2 males 1 female, p., 13.viii.83, 9.ix.83, Middlesex (B.T.P.); *Nymphalis antiopa* (L.): 2bs of 3 (3 males, 3 females overall), l., 2.viii.87, 8.viii.87, 25.viii.87, FRANCE [Alpes-Maritimes] (M.R.S.); *Danaus chrysippus* (L.): 1 male, p., em. i.73, LEBANON [Beirut] (T.B.L.); *Malacosoma neustria* (L.): 3 males (?b.), l., 1985, Sussex (A.R.C.); *Smerinthus ocellata* (L.): b. of 2 females, l., 17.viii.86, 29.viii-1.ix.86, 1987, Hampshire (B.T.P.); *Laothoe populi* (L.): 1 male, l., viii.79, 1979, Berkshire (B.T.P.); *Phalera bucephala* (L.): 19 bs of 1-2 but only 5 males, 2 females, em., l., 9.viii.83, viii.83, ix.83, Hampshire (B.T.P.); 1 female, l., 1985, Sussex (A.R.C.); *Euproctis similis* (Fuessly): 1 male, l., 16.vi.77, 7.vii.77, Nottinghamshire (F.H.); 1 male, l., 16.vii.76, 11.vii.76, Somerset (M.N.); 1 female, l., 22.vi.57, 16.vii.57, Suffolk (E.C.P-C.); *Leucoma salicis* (L.): b. of 1 male, 1 female, l., 4.viii.73, 13.viii.73, 27.viii.73, Lancashire (M.R.S.); *Lymantria dispar* (L.): 2 males, l., 4.vi.85, 1985, FRANCE [Loire-Atlantique] (N.H.); *Cucullia asteris* (Denis & Schiffermüller): 1 male, l., 31.vii.49, 28.viii.49, Surrey (E.C.P-C.); *Acronicta aceris* (L.): 1 female, pp., 28.vii.78, viii.78, 26.viii.78, Middlesex (I.K.B./M.R.S.); *A. tridens* (Denis & Schiffermüller): 1 female, p., 13.ix.77, 5.vi.78, Lancashire (M.R.S.); *A. psi* (L.): b. of 4 males, l., Lancashire (S.C.); b. of 1 male, 1 female, p., 8.ix.76, 8.vi.77, and 1 male, 1 female, p., 8.vii.76, Lancashire (W.A.W.); 3 males, 1 female, p., viii-ix.76, v-vi.77, Lancashire (M.R.S.); *A. rumicis* (L.): 1 male, p., 22.viii.82, iv.83, Hampshire (B.T.P.); plusiine noctuid sp.: 1 female, ?l., 16.viii.85, 16.ix.85, Somerset (E.C.P-C.). Perhaps the most polyphagous of the British Tachinidae, attacking many medium to large sized lepidopterous larvae and some sawflies, especially in the upper field layer and on bushes. Usually solitary but gregarious development in small broods regularly occurs in its larger hosts. Curiously, butterflies nearly always pupate before they are killed, whilst moths are usually killed as larvae. A regular exception to this pattern is seen when the host is an *Acronicta* species, whose overwintering pupae often carry *C. concinnata* through hibernation. Factors other than the means of overwintering seem to be involved, however, one of which may be the difficulty of escape from the dense cocoons or subterranean pupation sites of certain moths.

Tribe WINTHEMIINI

Smidtia conspersa (Meigen). *Epirrita* sp.: 1 male, l., on *Quercus,* 30.v.65, 7.v.66, Palnackie, Kirkcudbrightshire (E.C.P-C.). A species not commonly reared, but 1 female previously recorded from *E. dilutata* (Denis & Schiffermüller) from Buckinghamshire (Ford, 1976).

Winthemia quadripustulata (Fabricius). *Cucullia verbasci* (L.): b. of 5 males, 2 females, p., 8-16.viii.85, Warwickshire (K.C.G.). *Cucullia* species are the chief hosts, with a few records from other large lepidopterous larvae.

Nemorilla floralis (Fallén). *Agonopterix* sp. on *Peucedanum*: 1 male, l., 30.vii.88, 12.viii.88, 23.viii.88, Norfolk (M.R.S.); *Anthophila fabriciana* (L.): 2 males, l., 22.v.82, 2.vi.82, 7.vii.82, Oxfordshire (M.R.S.); ? *Clepsis spectrana* (Treitschke): 1 female, p., 9.v.82, v.82, 21.vi.82, London (R.A.S.); *Pleuroptya ruralis* (Scopoli): b. of 3 males, 1 female, p., vi.89, vii.89, Northamptonshire (C.D./J.H.P.); ? *Orthosia gothica* (L.): b. of 2 females, l., 12.vii.88, 23.vii.88, Oxfordshire (M.C.S./M.R.S.). This and the following species are probably polyphagous on many microlepidoptera and occasionally on some Noctuidae.

Nemorilla maculosa (Meigen). *Pterophorid* sp.: 1 male, p., 1.viii.87,, 14.viii.87, FRANCE [Alpes Maritimes] (M.R.S.). This species and *floralis* probably have the same range of hosts, but vary in their habitat requirements. In the warmer and drier regions of southern and eastern Europe *maculosa* occurs more commonly, but it has not been recorded from Britain.

Tribe ERYCIINI

Aplomyia confinis (Fallén). Lycaenid sp. on low legumes: 2 females, l., 24.vii.74, by 9.viii.74, 21.viii.74, FRANCE [Valderoure, Alpes Maritimes] (M.R.S.). A specific parasitoid of Lycaenidae.

Nilea hortulana (Meigen). *Acronicta tridens* (Denis & Schiffermüller): 4 males, 2 females and 2 not em. in 4 bs of 1-3, l. and pp., 13-16.ix.77, 20-30.vi.78, Lancashire (M.R.S.); *Acronicta psi* (L.): 1 male, 2 females, l., 10.ix.77, 14.ix.77, 1.vii.78, Yorkshire (W.A.E.); 4 males, 4 females in 4 bs of 1-3, l. and pp., 20.viii-16.ix.77, ix.77, 22.vi-10.vii.78, Lancashire (M.R.S.); b. of 1 male, 1 female, l., viii.81, 1982, and b. of 5 (2 males, 2 females em.), ix.81, 1982, Cornwall (J.L.G.); b. of 2 males, 2 females, l., 29.viii.84, 15.ix.84, 7-8.viii.85, Edinburgh (M.R.S.); b. of 4 (1 male, 2 females em.), l., 21.vii.79, 1.viii.79, 19-21.vi.80, Berkshire (M.R.S.); b. of 2 males, 1 female, l., 28.viii.76, ix.76, vii.77, Kirkcudbrightshire (T.H.F.). All the species of *Nilea* are chiefly parasitic on *Acronicta* species.

Epicampocera succincta (Meigen). *Pieris rapae* (L.): 1male, 2 female, p., Autumn 83, Spring 84, 28.v-6.vi.84, Crieff, Perthshire (J.R.M.); *Hadena bicruris* (Hufnagel): 1 male, l., ix.88, v.89, Derbyshire (F.H.). Previously

bred from *P. rapae* (Richards, 1940), ,attacking the young larvae.

Cavalieria genibarbis Villeneuve. *Biston strataria* (Hufnagel): 1 female, l., on *Quercus,* 10.vi.86, vii.86, iv.87, FRANCE [Cavalaire, Var] (T.H.F.). This is apparently the first host record for *genibarbis* (B. Herting, personal communication).

Phryxe erythrostoma (Hartig). *Hyloicus pinastri* (L.): b. of 4 males, 4 females, p., 30.vii.86, 26.vi-6.vii.87, FRANCE [Villars-Colmars, Alpes de Haute Provence] (M.R.S.). *P. erythrostoma* is a specific parasitoid of *H. pinastri,* as many as eighteen examples being recorded from one host pupa.

Phryxe heraclei (Meigen). *Philudoria potatoria* (L.): b. of 3 males, l., 30.iv.86, 6.v.86, Berkshire (B.T.P.). This species is a specific parasitoid of *potatoria* and has been reared on many occasions. Broods of up to 13 have been recorded (Ford, 1976).

Phryxe hirta (Bigot). *Heterogynis penella* (Hübner): 1 male, l., 23.v.74, 24.v.74, 16.vi.74, FRANCE [Digne, Alpes de Haute Provence] (M.R.S.); *Heterogynis* sp.: 1 male, pp., vi.88, 1988, SPAIN [Biel, Zaragosa] (N.H.). The type of *P. hirta* was bred from *H. penella* (see Herting, 1960 for notes on previous misidentifications).

Phryxe magnicornis (Zetterstedt). *Zygaena filipendulae* (L.): 1 male, 2 female, pp., 25.vi.78, 13.vii.78, 29.vii.78, Wiltshire (M.R.B.); 1 male and b. of 2 males, pp., 27.vi.76, 28.vi.76, 6-7.vii.76, Gloucestershire (R.R.A.); *Zygaena trifolii* (Esper): 1 male, 2 females, p., 20.vi.48, 2-10.vii.48, Somerset (E.C.P-C.); *Zygaena* sp.: 4 males, 1 female, pp. or p., 18.vi.62, 9-18.vii.62, Gloucestershire (E.C.P-C.); b. of 1 male, 1 female, pp. or p., 1.vi.74, 20.vi.74, Caernarvon (E.C.P-C.); *Opisthograptis luteolata* (L.): 1 male and b. of 1 male, 1 female, p., 2.viii.76, 30.viii.76, 3-19.ix.76, Cornwall (M.R.S.); *Erannis defoliaria* (Clerck): 1 female, l., 15.v.89, 19.v.89, 4.vi.89, FRANCE [Fontainbleau Forest] (T.H.F.). Rather specialised, usually attacking larvae of Zygaenidae and Geometridae.

Phryxe nemea (Meigen). *Zygaena graslini* Lederer: 1 female, l., 9.iv.74, LEBANON [Beirut] (T.B.L.); *Gonepteryx rhamni* (L.): 1 female, p., 5.vii.82, 18.vii.82, Hampshire (B.T.P.); *Aporia crataegi* (L.): 1 female, p., 1962, FRANCE [Hérault] (M.R.S.); *Anthocharis cardamines* (L.): b. of 3 males, p., 23.vi.88, 29.vi.88, 17.vii.88, and 1 female, p., 1986, iv.87, v.87, Hampshire (B.T.P.); *Quercusia quercus* (L.): 1 male, 2 females, from 2 l., vi.85, 16.vi.85, vii.85, Suffolk (M.A.H.); *Strymonidia pruni* (L.): 1 female, p., larva in open culture, vi.86, 23.vi.86, 1.vii.86, Hampshire (C.L.W.); 3 males, 1 female, v.83, v.83, 15-27.vi.83, WEST GERMANY [Bavaria] (H.G.S.); *Vanessa atalanta* (L.); b. of 1 male, 1 female, l., 2.viii.76, 10.viii.76, 23.viii.76, Cornwall (M.R.S.); *Epirrita dilutata* (Denis & Schiffermüller): 1 male, 2 females, pp., 1.vi.78, 25.vi.78, 1978, London (R.A.S.); *Operophtera brumata* (L.): 1 female, pp., 1.vi.78, 10.vi.78, 27.vi.78, Berkshire (M.R.S.); *Abraxas grossulariata* (L.): 11 bs of 1-3 (7

males, 9 females em.), l. and pp., 6.v.79, 5-22.vi.79, 25.vi-10.vii.79, Buckinghamshire (M.R.S.); 1 male, l., 2.vi.80, 29.vi.80, vii.80, Oxfordshire (M.R.B.); 2 males, l., 2-8.vi.81, Durham (T.C.D.); 1 male, 1 female, l., 24.v.82, 12.vii.82, Berkshire (B.T.P.); 1 male, l., 20.v.74, FRANCE [Seine Maritime] (G.S.); *Apocheima pilosaria* (Denis & Schiffermüller): 1 female, l., vi.80, 15.vi.80, 1980, Middlesex (M.R.B.); *Erannis defoliaria* (Clerck): 1 male, pp., 12.vi.75, 24.vi.75, 8.vii.75, Cheshire (M.R.S.); 1 male, 1 female, l., 11.v.75, 23.v.75, 6.vii.75, Kirkcudbrightshire (T.H.F.); 1 female, l., 2.vi.80, 13.vi.80, 1980, Berkshire (M.R.B.); *Agriopis aurantiaria* (Hübner): 1 female, l., 15.v.89, 26.v.89, 31.vi.89, FRANCE [Fontainbleau Forest] (T.H.F.); *? Alcis repandata* (L.): b. of 2 females, l., 18.v.80, 1980, Berkshire (M.R.B.); indet. geometrid: 1 female, l., 31.v.71, 3.vii.71, County Clare (E.C.P-C.); *Dasychira pudibunda* (L.): 1 female, l., ix.31, Hampshire (T.E.D.P.); *Mamestra brassicae* (L.): b. of 4 males, 2 females, p., 18.ix.75, 24.iii.76, 6-18.iv.86, Yorkshire (T.H.F.); *Lacanobia oleracea* (L.): b. of 1 male, 2 females, p., 1987, v.1988, Dorset (M.M.B.) ? *L. oleracea*: 1 female, l., viii.83, 3.x.83, Pembrokeshire (A.N.B.S.); ? *Amphipyra sp.: 1 male, l., vi.81, 1981, Berkshire (N.H.); ? Euplexia lucipara* (L.): b.of 2 males, 1 female, l., 15.viii.76, 1-4.x.76, Lancashire (M.R.S.); *Plusia gamma* (L.): b. of 2 females, p., 30.ix.75, 18.i.76, Cumbria (M.R.S.); 1 male, l., 26.viii.87, x.87, Gwynnedd (T.H.F.). A polyphagous species, commonly bred in numbers from *A. grossulariata* in Britain.

Phryxe prima (Brauer & Bergenstamm). *Zygaena graslini* Lederer: 1 female, 1., 9.iv.74, LEBANON [Hazimiiyé, Beirut] (T.B.L.). A specific parasitoid of Zygaenidae.

Phryxe vulgaris (Fallén). *Thymelicus sylvestris* (Poda): 2 male, 1 female, 1., 25.vi.78, 11.vii.78, 28.vii.78, Wiltshire (M.R.B.); *Thymelicus lineola* (Ochsenheimer): 2 females, 1., 20.vi.87, 4.vii.87, vii.87, Middlesex (P.W.C.); *Pieris rapae* (L.): 1 male, 4 females, p., x.78, 20.x.78, Berkshire (P.R.W.); 1 male, 3 females, p., 29.viii.78, Derbyshire (F.H.); 1 female, p., 9.ix.73, 4.v.74, 28.vc.74, Cheshire (M.R.S.); *Anthocharis cardamines* (L.): 1 male, p., 30.v.75, 2.v.76, 27.v.76, Gloucestershire (R.R.A.); 1 male, p., vi.83, iv.84, Berkshire (B.T.P.); 1 female, p., 2.vii.86, vii.86, 30.vii.86, Hampshire (B.T.P.); 1 female, p., vi.89, 16.vii.89, Clwyd (D.S.); 1 female, p., 31.v.74, 3.iii.75, 21.iii.75, FRANCE [Var] (M.R.S.); *Aglais urticae* (L.): b. of 1 male, 2 females, p., 27.v.82, 18.vi.82, Oxfordshire (B.T.P.); 1 female, p., 3.viii.87, 20.viii.87, FRANCE [Alpes Maritimes] (M.R.S.); *Hadena bicruris* (Hufnagel): 1 male, 1 female, 1., ix.88, v.89, Derbyshire (F.H.); *Eremobia ochroleuca* (Denis & Schiffermüller): 1 female, pp., 25.vi.78, 15.vii.78, 4.viii.78, Wiltshire (M.R.B./M.R.S.). A parasitoid of larger butterfly, noctuid and geometrid larvae in the field layer, not usually attacking small, hairy or arboreal species. Several generations occur annually from May to October in gardens, waste places and other open habitats.

? Phryxe vulgaris. *Evergestis extimalis* (Scopoli): 1 female, l., 3.ix.74, 19.vi.75, Essex (E.C.P-C.); *Cucullia asteris* Denis & Schiffermüller): 1 female, l., 31.vi.49, ix.49, Surrey (E.C.P-C.). The identity of these specimens follows E.C.P-C. but their condition is now too poor for confirmation.

Bactromyia aurulenta (Meigen). *Philereme transversata* (Hufnagel) or *Phigalia pilosaria* (Denis & Schiffermüller): 2 males, l., 28.v.77, 3.vi.77, 12.vi.77, Hampshire (A.D.); *Dasychira pudibunda* (L.); 1 male, 3 females, l., ix.31, Hampshire (T.E.D.P.). A fairly polyphagous species, apparently with a preference for larvae of the Drepanidae.

Pseudoperichaeta nigrolineata (Walker). *Archips xylosteana* (L.) 1 male, p., 23.v.89, 19.vi.89, FRANCE [Var] (T.H.F.); *Archips rosana* (L.): 1 male, p., 24.vi.76, 30.vi.76, 8.vii.76, Lancashire (M.R.S.); *Cnephasia stephensiana* (Doubleday): 4 males, 2 females, em. 29.vi-9.vii.42, locality uncertain (L.T.F.); *Eurrhypara hortulata* (L.): 1 male, 15.ix.81, 20.v.82, London (R.A.S.); 1 female, pp., ix.76, 23.v.77, Yorkshire (T.H.F.); *Eurrhypara terrealis* (Treitschke): 1 male, l., 18.vii.89, 3.viii.89, 21.viii.89, Cumbria (M.R.S.); indet. tortricid on *Quercus*: 1 male, p., 15.vi.78, 11.vii.78, Berkshire (M.R.S.); *Laspeyresia pomonella* (L.): 8.vii.755, vi.76, Kent (H.B.). A parasitoid of numerous microlepidoptera.

Lydella stabulans (Meigen). *Nonagria typhae* (Thunberg): 1 male, p., em. 4.viii.85, Matlock, Derbyshire (F.H.). Chiefly parasitic on the wainscot moths.

Cadurciella tritaeniata (Rondani). *Callophrys rubi* (L.): 2 males, 11 females, p., 8.vii.83, v.84, vi.84, Suffolk (M.R.S.); 2 males, 1 female, 22-24.vii.78, 5-10.v.79, 4-7.vi.79, Buckinghamshire (M.R.S.); 1 male, p., 28.vi.78, 9.v.79, Oxfordshire (M.R.S.); 1 female, p., 25.vi.78, 14.v.79, 14.vi.79, Wiltshire (M.R.S.). A specific parasitoid of *C. rubi*. Parasitised host larvae were both swept from open downland and beaten from *Sarothamus* in heathland scrub. The larva overwinters in the host pupa, but erupts to pupate externally in spring.

Drino inconspicua (Meigen). *Minucia lunaris* (Denis & Schiffermüller): 1 male, 1 female and b. of 2 (1 male em.), l., on *Quercus suber*, 9.vi.89, 16.vii.89, FRANCE [Cavalaire, Var] (T.H.F.). Primarily a parasitoid of *Diprion* species (Hymenoptera, Diprionidae), also attacking larvae of macrolepidoptera, especially those feeding on *Pinus*. Apparently not previously recorded from *lunaris*. The puparia of *Drino* species are remarkable in being covered in dense, short pilosity.

Drino lota (Meigen). *Deilephila elpenor* (L.): 1 male, possibly part of a larger brood, l., 1976, Hampshire (A.D.). Sphingidae are the chief hosts, with brood sizes of up to 27 known. Other large lepidopterous larvae have also been recorded as hosts.

Carcelia gnava (Meigen). *Malacosoma neustria* (L.). 1 male, l., vi.64, Devon (A.D.); *Dasychira pudibunda* (L.): 1 female, 1931, Hampshire

(T.E.D.P.). Double-brooded, the May/June generation attacking *neustria* and the July/August emergence attacking *pudibunda*. Has also been recorded from *Phalera bucephala* (L.). *Leucoma salicis* (L.) and *Arctia caja* (L.).

Carcelia lucorum (Meigen). *Arctia caja* (L.): b. of 5 females, pp., Tyne and Wear (D.A.S.); b. of 1 male, 4 females, pp., Devon (J.H.P.); b. of 5 males, 1 female, pp., Yorkshire (P.W.); 1 male, l. or pp., em. 4.vii.87 (K.C.G.); 7 males, 4 females in 2bs, pp., 3.vi.89, vi.89, vi-vii.89, Cambridgeshire (D.Y.); *Phragmatobia fuliginosa* (L.): b. of 1 male, 3 females, pp., iv.84, v.84, Buckinghamshire (B.T.P.); b. of 2 males, 1 female, l. or pp., Derbyshire (B.S.); ? *P. fuliginosa*: b. of 3 males, 2 females, pp., 17.vii.88, as cocooned prepupa, 18.vii.88, 10.viii.88, Cumbria (M.R.S.). Parasitic on the larger Arctiidae, passing the winter in the host larva and emerging in May or June to pupate, usually in the host cocoon. There appears also to be at least a partial midsummer generation.

Senometopia pollinosa (Mesnil). *Bupalus piniaria* (L.): 2 males, 1 female, p., 27.ix.78, v-vi.79, 9.vi.-6.vii.79, Burghfield Common, Berkshire (M.R.S.). A British record from this host is given by Wainwright (1940), and there are continental records by several authors. A specialist parasitoid of *piniaria* but also recorded from *Semiothisa liturata* (Clerck).

Senometopia sussurans (Rondani). Indet. geometrid on low plants: 1 male, p., vii.87, viii.87, ITALY [Iesa, 40 km. south of Siena, Tuscany] (M.R.S.). There appears to be no host record for this species.

Erycia festinans (Meigen). *Melitaea cinxia* (L.): 1 female, p., iv.77, v.77, FRANCE [Dordogne] (R.R.A.). A specific parasitoid of genera related to *Melitaea* and *Euphydryas*.

Erycia furibunda (Zetterstedt). *Euphydryas aurinia* (Rottemburg): 1 female, p., ix.75, vi.76, 24.vi.76, Pengwern Common, Gower, Glamorgan (R.R.A.). This species is very similar to *festinans*. It has been reared from *E. aurinia* in Britain previously (Wainwright, 1928, as *E. fatua*).

Tribe GONIINI

Eumea linearicornis (Zetterstedt). Indet. noctuid, probably *Agrochola litura* (L.) or *Orthosia gracilis* (Denis & Schiffermüller), in spun shoots of Michaelmas Daisy (*Aster* sp.): 2 females, 24.vi.78, 15-16.viii.78, Abney Park Cemetery, London (R.A.S.). Recorded from several micro-lepidoptera larvae; also from *Cosmia pyralina* (L.) (Hammond & Smith, 1955).

Pales pavida (Meigen). *Zygaena lonicerae* (Scheven): 2 males, l., 14.vi.83, 9.vii.83, and b. of 3 (1 male, 1 female em.), 25.v.88, 15.vi.88, 5.vii.88, also b. of 3 (1 female em.), l., 25.vi.88, 5.vii.88, Berkshire (B.T.P.); 7 males, 9 females, pp., vi.88, 20-30.vi.88, Yorkshire (T.H.F.); 3 males, l., 7.vi.88,

4.vii.88, Warwickshire (K.C.G.); *Vanessa atalanta* (L.): 1 female, p., 15.vii.70, FRANCE [Corsica] (M.R.S.); *Aglais ichnusa* (Hübner): 1 female, p., 15.vii.70, FRANCE [Corsica] (M.R.S.): *Malacosoma neustria* (L.): 1 male, 1 female, l., 25.vi.61, 6.vii.61, County Clare (E.C.P-C.); *Polyploca ridens* (Fabricius): 1 male, l., 24.vi.89, 9.vii.89, Northamptonshire (B.S.); *Agriopis leucophaearia* (Denis & Schiffermüller): 1 female, pp., 13.vi.78, 28.vii.78, London (R.A.S.); *A. leucophaearia* or *Theria rupricapraria* (Denis & Schiffermüller): 1 female, l., 2.vi.80, 13.vi.80, 1980, Berkshire (M.R.B.); *Phalera bucephala* (L.): 1 female, pp., viii.76, 23.viii.76, Derbyshire (F.H.); *Ptilodon capucina* (L.): 1 male, l., 18.vi.80, 1980, Berkshire (B.T.P.); b. of 1 male, 1 female, l., 24.vii.78, Buckinghamshire (M.R.S.); *Leucoma salicis* (L.): 5 (1 male, 4 unsexed), l., 29.vi.73, 3-14.vii.73, 20-30.vii.73, and 1 male, p., 29.vi.73, 6.vii.73, 24.vii.73, also 1 male, l., 23.vii.73, 26.vii.73, 11.viii.73, Lancashire (M.R.S.); *Noctua pronuba* (L.): b. of 6 (2 males, 1 female em.) l., 22.ix.75, xii.75, 25-29.ii.76, Yorkshire (P.W.); *Orthosia cruda* (Denis & Schiffermüller): 5 males, 4 females, l., vi.87, 10-21.vii.87, FRANCE [Var] (T.H.F.); *Orthosia stabilis* (Denis & Schiffermüller): 2 males, 2 females, l., viii.82, 10-14.vii.88, Yorkshire (T.H.F.); 1 male, l., 10.vii.82, vii.82, viii.82, Dumfriesshire (M.R.S.); 2 males, l., vi.87, 7-12.vii.87, and 1 male, 1 female, l., 9.vi.89, 10.vii.89, FRANCE [Var] (T.H.F.); *Orthosia* sp.: 2 males, 1 female, l., 12.vii.80, 1980, Berkshire (B.T.P.); *Mythimna straminea* (Treitschke): 1 male, 1 female, l., 3.vi.89, 30.vi.89, Cambridgeshire (B.S.); *Mythimna ? pallens* (L.): b. of 2 females, l., 19.vi.75, 16.vi.75, Hampshire (M.R.S.); *Mythimna* sp.: 1 female, l., 4.v.79, 25.vi.79, 3.vii.79, Berkshire (M.R.S.); 1 female, l., 23.v.84, 24.v.84, 14.vi.84, Berkshire (B.T.P.); *Acronicta alni* (L.): 1 female, p., 13.vii.76, 1.viii.76, 22.viii.76, Essex (G.B./M.R.S.); *Acronicta rumicis* (L.): 1 female, l., 17.viii.77, 10.ix.77, Britain (origin otherwise obscure); *Agrochola litura* (L.): 1 male, l., 10.vii.78, 14.viii.78, London (R.A.S.); *Catocala nymphagoga* (Esper); 1 male, 1 female, l., 16.vi.88, 23.vi.88, FRANCE [Var] (T.H.F.). A common polyphagous species, recorded from numerous macrolepidopterous larvae.

Cyzenis albicans (Fallén). *Ypsolopha vitella* (L.): 1 male, p., on *Ulmus glabra,* 31.v.88,15.iv.89, Edinburgh, Midlothian (M.R.S.); *Operophtera brumata* (L.): 1 male, 1 female, p., 6.vii.77, 22.iv.78, Nottinghamshire (F.H.); 6 males, 2 females, p., 7.vi.73, 10-26.iv.74, Derbyshire (M.R.S.); 1 male, 1 female, p., 31.v.73, 7-9.iv.74, Oxfordshire (M.R.S.); 1 female, p., 31.v.73, 17.iv.74, Buckinghamshire (M.R.S.); *Operophtera fagata* (Scharfenberg): 3 males, p., 25.v.66, 19.iii.-2.iv.67, Caernarvon (E.C.P-C.). A common parasitoid of *brumata,* the larva pupating inside the host pupa.

Cadurcia casta Rondani. *Choreutis nemorana* (Hübner); 3 (1 female, 1 unsexed em.), p., 9.viii.82, 8.ix.82, FRANCE [Serignan Plage, Hérault]

(M.R.S.); *Nycteola revayana* (Scopoli): 1 female, p., 9.vi.89, 16.vii.89, FRANCE [Cavalaire, Var] (T.H.F.). This small distinctive species appears hitherto to have been reared only from *C. nemorana,* which feeds on *Ficus carica.* This plant was growing within a few metres of the *Quercus suber* from which the above *revayana* was collected. Pupation takes place inside the host pupa.

Elodia morio (Fallén). *Gelechia sororculella* (Hübner): 2 females, v.80, 1980, Middleyard Coppice, Worcestershire (A.N.B.S.). Has been bred from numerous microlepidoptera, but we cannot find any records for *sororculella.* Pupation takes place inside the host pupa.

Sturmia bella (Meigen). *Vanessa atalanta* (L.): 1 male, 3 females, p., 15.vii.70, FRANCE [Corsica] (M.R.S.); *Aglais urticae* (L.): 2 males, p., 3.viii.87, 23.viii.87, FRANCE [Alpes Maritimes] (M.R.S.); *Aglais ichnusa* (Hübner): 1 male, 2 females, p., 15.vii.70, 18.vii.70, 29.vii.70, FRANCE [Corsica] (M.R.S.); *Inachis io* (L.): 2 males, p., FRANCE (J.H.J.). A common parasitoid of Vanessinae, the larva usually emerging from the host pupa.

Blepharipa pratensis (Meigen). *Lymantria dispar* (L.): 1 male, p., 10.vi.86, 6.vii.86, iv.87, FRANCE [Var] (T.H.F.); *Catocala nymphagoga* (Esper): 1 male, pp., v.87, iv.88, and 1 female, p., 9.vi.88, 10.iii.89, FRANCE [Cavalaire, Var] (T.H.F.). An important parasitoid of *dispar* on the continent, which has been introduced into North America for the biological control of *dispar,* but apparently otherwise only recorded from *Dendrolimus pini* (L.).

Masicera pavoniae (Robineau-Desvoidy). *Saturnia pyri* (Denis & Schiffermüller): b. of 18 (1 male, 8 females seen), p., 30.vii.86, iv.87, 14.v.87, FRANCE [Gard] (G.N.B.). Usually reared from *Saturnia* species but has also been recorded from *Acherontia atropos* (L.) and *Notodonta ziczac* (L.)

Masicera sphingivora (Robineau-Desvoidy). *Nymphalis polychloros* (L.): b. of 1 male, 1 female, p., on *Prunus,* 31.v.74, 20.vi.74, 8-10.vii.74, FRANCE [St Maximin, Var] (M.R.S.); 3 males, 2 females, p., on *Celtis australis*, 20.v.74, 4.vi.74, 20.vi.74, FRANCE [Les Arcs, Var] (M.R.S.). Members of the genus *Deilephila* are the most favoured hosts, but it has also been recorded from other Lepidoptera including one butterfly, *Aporia crataegi* (L.).

Frontina laeta (Meigen). *Smerinthus ocellata* (L.): b. of 10 (2 males, 4 females dissected from puparia), 30.viii.87, parasitoid larvae emerged 22.ix.87, Bramshill, Hampshire (B.T.P.). In Britain this uncommon species has been recorded only from *S. ocellata* (Hammond & Smith, 1953), but on the continent also from *Laothoe populi* (L.) and *Sphinx ligustri* (L.).

Tribe TACHININI

Tachina grossa (L.). *Lasiocampa quercus* (L.): 1 male, p., 1982, Surrey (B.T.P.). The largest European tachinid, regularly attacking larvae of the Lasiocampidae, and emerging as an adult from the host pupa.

Tribe NEMORAEINI

Nemoraea pellucida (Meigen). *Orthosia stabilis* (Denis & Schiffermüller): 1 female, p., vi.89, 18.vii.89, FRANCE [Cavalaire, Var] (T.H.F.). Previously recorded from *stabilis* by Wainwright (1928), but known also from other medium sized macrolepidoptera.

Tribe LINNAEMYIINI

Linnaemyia vulpina (Fallén). *Lycophotia porphyrea* (Denis & Schiffermüller): 1 male, 3 females, pp., 31.iii.79, vi.79, 29.vi-15.vii.79, Berkshire (M.R.S.). Commonly bred from *porphyrea,* occasionally from other noctuid species.

Linnaemyia rossica Zimin. *Xestia agathina* (Duponchel): 1 male, 1., 3.iv.85, 31.v.85, Glen Affric, Inverness-shire, (E.C.P-C.). This is the first British host record for *rossica.* Audcent (1942) lists only continental records for *Linnaemyia haemorrhoidalis* (Fallén), which has not been shown to occur in Britain.

Lypha dubia (Fallén). *Operophtera brumata* (L.): 2 males, pp., 31.v.73, 7-11.iv.74, Buckinghamshire (M.R.S.); 1 male, pp., 31.v.73, 14.iv.74, Oxfordshire (M.R.S.); indet. tortricid larva in folded frond of *Pteridium* under *Quercus*: 1 male, pp., 26.vi.83, 1984, Inchcailloch, Loch Lomond (K.P.B.). A common and important parasitoid of *brumata,* flying in spring from April until June. It is often seen sunning itself on tree trunks in deciduous woodland.

Tribe ERNESTIINI

Ernestia rudis (Fallén). *Orthosia stabilis* (Denis & Schiffermüller): 1 male, 1., 6.vi.88, 4.v.89, FRANCE [Cavalaire, Var] (T.H.F.). On the continent a very important parasitoid of *Panolis flammea* (Denis & Schiffermüller). In view of the fact that *Ernestia vagans* (Meigen) and *E. rudis* are easily confused, and that a series of parasitoids reared from *flavicornis* which was examined by him and found to consist solely of *vagans,* Dr Herting considers that the record of *rudis* from this host cited by Lundbeck (1927) is more likely to be *vagans.* The specimen bred from *Polyploca ridens* (Fabricius) by Taylor (1938) as *rudis* was later determined by Dr Herting to be *vagans,* (Herting, 1965).

Ernestia vagans (Meigen). *Achlya falvicornis* (L.): 1 male, 2 females, pp., 11.vi.81, 25.iv.-8.v.82, Flanders Moss, Stirlingshire (M.R.S.). Bred only from *Achlya,* and from *Polyploca* by Taylor (1938), (see under *rudis*).

Eurithia consobrina (Meigen). *Lacanobia oleracea* (L.): 2 females, 1., 1.x.80, 9.viii.81, Broad Street Station, London (R.A.S.); *Xanthia gilvago (Denis & Schiffermüller).* 1 female and b. of 2 females, 1., 3.vi.84, 6.vii.84, 20.v.85, Preston, Lancashire (P.S.). Apparently a specialist parasitoid of *Mamestra* and related genera, but also reported from *Cosmia trapezina* (L.) and *Abrostola triplasia* (L.).

Tribe PELATACHININI

Pelatachina tibialis (Fallén). *Aglais urticae* (L.): 1male, 1., 8.vi.80, 18.vi.80, em. 1980, Perthshire (J.R.M.); *Aglais ichnusa* (Hübner): 3 bs of 1-2 (unsexed), 23.vii.73, FRANCE [Corsica] (M.C.S.). Parasitic chiefly on vannessine larvae but also recorded from some noctuids.

Tribe NEAERINI

Neoplectops pomonellae (Schnabl & Mokrzecki). *? Gypsonoma* sp. in shoots of *Populus nigra*: 1 female, 19-31.vii.87, ix.87, ITALY [Iesa, 40 km S. of Siena, Tuscany] (M.R.S.). We do not know of previous rearing records for this species.

Phytomyptera cingulata (Robineau-Desvoidy). *Nemopogon cloacella* (Haworth): 11 males, 12 females, l. or pp., in *Phellinus pini* on live *Pinus,* 1.v.82, 5.vi-4.vii.82, Perthshire (M.R.S.); *N. cloacella* or *Schiffermulleria similella* (Hübner): 1 female, l. or pp., in rotting *Pinus,* 9.iv.82, 22.iv.82, Perthshire (M.R.S.); *Nemopogon personella* (Pierce & Metecalfe): 3 males, 7 females, e., or pp., in bracket fungus on live *Quercus,* ix.81, vi.82, Berkshire (J.A.O.); *Esperia sulphurella* (Fabricius): 6 males, 8 females, l. or pp., 16.iv.76, 25.v-30.vi.76, in dead *Prunus* bark, Warwickshire (M.R.S.); 1 male, l. or pp., in *Malus* bark, v.87, Dorset (M.M.B.); oecophorid in dead *Quercus* bark: 1 male, 1 female, l. or pp., 20.iv.85, 10-17.v.85, Kent (E.C.P-C.); *Teleiodes sequax* (Haworth): 1 female, 1., 23.vi.84, 17.vii.84, Aberdeenshire (E.C.P-C.); *Acleris variegana* (Denis & Schiffermüller): 1 female, l. or pp., on *Berberis,* 19.vii.70, 12.viii.70, Aberdeenshire (E.C.P-C.); indet. tortricid on *Teucrium:* 1 male, 1., 23.vii.70, 12.viii.70, Aberdeenshire (E.C.P-C.). This species is recorded from a wide range of microlepidopterous larvae, but especially those feeding in fungi or dead wood.

Phytomyptera nigrina (Meigen). *Caloptilia elongella* (L.): 3 female, 1., em. vi.76, SWITZERLAND [Egglisgraben, BL] (S.E.W.); *Caloptilia rufipennella* (Hübner): 1female, 30.vi.79, 17.vii.79, FRANCE [Le Fays, Haute Saone] (S.E.W.); *Epinotia immundana* (Fischer von Röslerstamm): 3 males, 1., 12.vii.79, vii.79, viii.79, Hampshire (M.R.S.); *Archips rosana* (L.): 3 males, 1., (origin obscure); *Adaina microdactyla* (Hübner): 1 male, 1., 23.iv.79, 15.v.79, Oxfordshire (M.R.S.). Known from a range of microlepidoptera.

Tribe SIPHONINI

Ceromyia bicolor (Meigen). *Lasiocampa trifolii* (Denis & Schiffermüller): b. of 3 males, 6 females, mature l., 1983, Hayling Island, Hampshire (A.R.C.); *Lasiocampa quercus* (L.): 1 female, young l., 12.viii.75, 20.viii.75, 11.ix.75, Loch Achilty, Ross and Cromarty (M.R.S.); b. of 24, mature l., Hoy, Orkney (R.I.L.). This species seems to be solitary in small host larvae, but to develop in sizeable broods in the large ones from which it is more commonly reared. It can overwinter as a puparium.

Actia crassicornis (Meigen). *Depressaria conterminella* (Zeller): 1 male, l., 30.v.61, 24.vi.61, Ballyshannon, Donegal (E.C.P-C.). The larvae of depressariine oecophorids are the usual hosts.

Actia pilipennis (Fallén). *Anthophila fabriciana* (L.): 2 males, 4 females, l., 30.v.61, 24.vi.61, Perthshire (M.R.S.); 2 males, 3 females, 13.vi.81, 1.vii.81, vii.81, Selkirkshire (M.R.S.); 1 male, 2 females, 2.vii.77, 11.vii.77, 20-28.vii.77, Yorkshire (T.H.F.); *Eutromula pariana* (Clerck): 1 female, l., 26.vii.84, 29.vii.84, 29.vii.84, FRANCE [Alpes Maritimes] (M.R.S.); *Hypatima rhomboidella* (L.): 1 female, l., 29.vi.83, 19.vii.83, Cornwall (J.L.G.); *Lozotaenia forsterana* (Fabricius): 2 females, l., 23.v.84, Cornwall (J.L.G.); *Acleris rufana* (Denis & Schiffermüller): 1 male, l., 22.viii.54, 24.ix.54, Argyllshire (E.C.P-C.). Known to parasitise a wide range of microlepidoptera.

Peribaea tibialis (Robineau-Desvoidy). *Cyclophora puppillaria* (Hübner): 1 male, l., 18.v.89, 19.v.89, 9.vi.89, FRANCE [Var] (T.H.F.); *Pachycnemia hippocastanaria* (Hübner): 1 female, l., 23.v.88, 2.vi.88, 16.vi.88, and 1 male, 1 female, l., 29.v.89, 31.v.89, 11-16.vi.89, FRANCE [Var] (T.H.F.); indet. geometrid on *Cytisus*: 1 female, l., 16.v.89, 20.v.89, 31.vi.89, FRANCE [Drôme] (T.H.F.). Herting (1968) showed that what had hitherto been regarded as *P. tibialis* was a complex of two species, *P. tibialis* and *P. apicalis* (Robineau-Desvoidy). He gives *Lithosia complana* (L.), *Phragmatobia fuliginosa* (L.) and *Lacanobia oleracea* (L.) as definite hosts of *tibialis,* whose host range therefore appears to be broad.

Ceranthia abdominalis (Robineau-Desvoidy). *Cyclophora puppillaria* (Hübner): 2 females, l., on *Myrtus communis,* 18.v.89, 23.v.89, 14.vi.89, FRANCE [Var] (T.H.F.).Previously reared from *Cyclophora pendularia* (Clerck), *C. annulata* (Schulze) and *C. porata* (L.).

Ceranthia lichtwardtiana (Villeneuve) (det. Stig Andersen). *Eupithecia* sp. on *Betula*: 1 male, l., viii.87, viii.87, 27.vi.88, Hoy, Orkney (R.I.L.). We can find no reference to previous rearings, but its congener *C. tristella* Herting has been reared from *Eupithecia silenata* Standfuss (Herting, 1966).

Siphona cristata (Fabricius) (det, Stig Andersen). *Mamestra brassicae* (L.): b. of 8 (2 males, 1 female, 4 unsexed em.), l., 3.ix.82, 14.ix.82, 26.vii-4.viii.83, South Edinburgh (M.R.S.); b. of 12 (6 females, 6 unsexed)

l., ix.73, x.73, vii.74, East Didsbury, Manchester (M.R.S.); indet. noctuid on *Clematis montana:* b. of 17 (3 males, 4 females, 3 unsexed em.), l., 28.viii.80, 2.ix.80, 2-18.viii.81, Reading, Berkshire (B.T.P.); indet. noctuid on low plants: b. of 23 (8 males, 12 females, 3 unsexed), l., 9.viii.82, 12.viii.82, 4.viii.83, Drayton St. Leonard, Oxfordshire (M.C.S.). A gregarious parasitoid of large lepidopterous larvae, particularly Noctuidae.

Tribe VORIINI

Campylochaeta inepta (Meigen). *Dendrolimus pini* (L.): b. of 3 (1 female, 1 unsexed em.), l., 30.vii-4.viii.86, 10.ix.86, 1987, FRANCE [Villars-Colmars, Alpes de Haute Provence] (M.R.S.); *Ematurga atomaria* (L.): 6 males, 1 female, l., 28.vii.81, 12.viii.81, 3.vi.82, Cors Goch NR, Anglesey (M.R.S.); *Anarta myrtilli* (L.): 1 male, l., em. 21.iii.77, Meathop Moss NR, Cumbria (W.A.W.). Parasitic chiefly on geometrid larvae occurring on heaths and moorland, but known also from other macrolepidoptera occurring in similar habitats.

Blepharomyia pagana (Meigen). *Erannis defoliaria* (Clerck): 2 females, pp., 20.v.75, 21.iv.76, Hampshire (M.R.S.); 1 male, 1 female, pp., em. 1985, Sussex (A.R.C.). Has been reared from various spring-feeding geometrid larvae.

Ramonda spathulata (Fallén). *Ochropleura praecox* (L.): 1 male, 1 female, p., em. 28.vi-1.vii.87, Lancashire (K.C.G.); *? Noctua pronuba* (L.): b. of 2 males, 3.iii.78, 11.iii.78, 1978, London (R.A.S.); *Xestia xanthographa* (Denis & Schiffermüller): 6 males, 12 females and b. of 2 males, l., 2.iii.79, 6-14-iv.79, 16-24.v.79, Berkshire (M.R.S.); b. of 2 males, xii.77, 26.ii.78, 7.v.78, and b. of 2 males, 3.iii.78, 20.iii.78, 15.v.78, also 1 male, 1 female, 3.iv.79, 13.iv.79, 13.v.79, London (R.A.S.); 1 female and b. of 2 females, 3.ii.76, 10.ii.76, 20-23.ii.76, Northumberland (D.A.S.); *Mythimna ? pallens* (L.): b. of 6 (4 females em.), l., 5.vi.75, 12.vi.75, 2.vii.75, Lancashire (M.R.S.): *Apamea ? crenata* (Hufnagel): 1 female, l., 2.ix.75, xii.75, 1976, Yorkshire (P.W.). A regular parasitoid of low-feeding noctuid larvae in grassland.

Athrycia impressa (Wulp). *Anarta myrtilli* (L.): 1 male, 5.vii.78, 19.vii.78, Surrey (M.R.S.). This specimen was determined by Dr Herting and is the first record of *impressa* from Britain.

Athrycia trepida (Meigen). *Orthosia gothica* (L.): 1 female and 2 bs of 1 male, 1 female, pp., 22.vi-8.vii.78, 15.v-3.vi.79, London (R.A.S.). Parasitic on larvae of various Noctuidae.

Voria ruralis (Fallén). *Autographa gamma* (L.): b. of 4 (1 male, 2 females em.), l., 6.viii.89, 19.viii.89, Cornwall (J.L.G.); *Abrostola triplasia* (L.): b. of 2 females, l., 30.vii.76, 1.x.76, Kirkcudbrightshire (T.H.F.); plusiine sp. on *Mentha*: b. of 5 males, 3 females, l., 31.x.87, 4.v.88, 15-20.v.88, Midlothian (K.P.B.). A specialist parasitoid of Plusiinae, but also recorded

from some other noctuids, *Arctia* species, and once from *Vanessa cardui* (L.). In the broods recorded here the puparia formed in the host's larval skin side by side, and in the largest brood the row of puparia extended along the entire length of the host's body.

Cyrtophleba ruricola (Meigen). *Pachycnemia hippocastanaria* (Hübner): b. of 2 females, l., 23.v.88, 2.vi.88, 16.vi.88, and b. of 2 females, l., 9.vi.89, 14.vi.89, also b. of 1 male, 2 females, l., 28.v.89, 14.vi.89, 25.vi.89, FRANCE [8km N. of Frejus, Var] (T.H.F.); *Ceramica pisi* (L.): b. of 5males, 6 females, pp., 1.vi.86, 19-23.iv.87, FRANCE [St Paul-en-Forêt, Var] (T.H.F.). Usually parasitic on larvae of Noctuidae. The puparium is strikingly rotund, smooth and very glossy, with the terminal tubercle displaced dorsally.

Thelaira nigripes (Fabricius). *Diaphora sordida* (Hübner): 1 female, l., 3.viii.87, 13.viii.87, 22.vi.88, FRANCE [Valdeblore, Alpes Maritimes] (M.R.S.). Recorded from various Arctiidae but, so far as we know, not previously from *sordida.* Also recorded from some Noctuidae and Lasiocampidae.

Most of the foregoing material is now in the collections of the National Museums of Scotland, a few specimens remaining with T.H. Ford. One specimen each of *Exorista nova* and *Cadurcia casta* were retained by Dr Herting for the collections of the Staatliches Museum für Naturkunde, Stuttgart.

Acknowledgements

We are grateful to Dr B. Herting and Dr H-P. Tschorsnig of the Staatliches Museum für Naturkunde, Stuttgart and Dr S. Andersen of the Zoologiske Museum, Copenhagen, for help with identification, and also the following for preserving and supplying much of the material: R.R. Askew, H. Bates, K.P. Bland, M.R. Britton, M.M. Brooks, G. Bryan, I.K. Buchanan, A. Buckham, G.N. Burton, S. Campbell, P.W. Cribb, I.C. Christie, A.R. Cronin, C. Davidson, A. Dobson, T.C. Dunn, W.A. Ely, L.T. Ford, K.C. Greenwood, J.L. Gregory, N. Hall, F. Harrison, M.A. Hope, J.H. Johnson, T.B. Larsen, R.I. Lorimer, J. McFeely, A.M. Maclaurin, J.R. Miller, M. Noble, J.A. Owen, B.T. Parson, J.H. Payne, E.C. Pelham-Clinton, T.E.D. Poore, W.M. Phillips, M.C. Shaw, D.A. Sheppard, H.G. Short, A.N.B. Simpson, G. Sircoulomb, R.A. Softly, B. Statham, D. Stokes, P. Summers, W.A. Watson, S.E. Whitebread, P.R. Wiles, P.Winter, C.L. Wiskin, J. Wormell, D. Young. Many thanks, too, to Sharon McKay for heroic typing.

References

Andersen, S., 1988. Revision of European species of *Phytomyptera* Rondani (Diptera Tachinidae). *Ent. scand.* **19**: 43-80.

Audcent, H., 1942. A preliminary list of the hosts of some British Tachinidae. *Trans. Soc. Brit. Ent.* **8**: 1-42.

van Emden, F.I., 1954. Diptera Cyclorrhapha. Calyptrata (I) Section (a). Tachinidae and Calliphoridae. *Handbk. Ident. Br. Insects* **10** (4a): 133pp.

Ford, T.H., 1976. Some records of bred Tachinidae –2. *Entomologist's Rec. J. Var.* **88**: 68-71.

—, 1989. *Medina separata* (Meigen) (Dipt., Tachinidae), new to Britain, *Entomologist's mon. Mag.* **125**: 139-140.

Hammond, H.E. & Smith, K.G.V., 1953. On some parasitic Dipitera and Hymenoptera bred from lepidopterous hosts, Part 1. *Entomologist's Gaz.* **4**: 273-279.

Hammond, H.E. & Smith, K.G.V., 1955. On some parasitic Diptera and Hymenoptera bred from lepidopterous hosts, Part 2. *Emtomologist's Gaz.* **6**: 168-174.

Herting, B., 1960. Biologie der westpalärktischen Raupenfliegen (Dipt., Tachinidae). *Monogrn angew. Ent.* **16**: 188pp.

— , 1965. Die Parasiten der schädlich auftretenden Spanner- und Eulenraupen. *Zeitschrift für angewandte Entomologie.* **55**: 236-263.

— , 1966. Beitträge zur Kenntnis der europäischen Raupenfliegen (Dipt. Tachinidae). IX. *Stuttg. Beitr. Naturk.* **146**: 1-12.

— , 1968. Beiträge zur Kenntnis der europäischen Raupenfliegen (Dipt. Tachinidae). XI. *Stuttg. Beitr. Naturk.* **196**: 1-8.

— , 1984. Catalogue of Palaearctic Tachinidae (Diptera). *Stuttg. Beitr. Naturk.* (A) **369**: 228pp.

Kloet, G.S. & Hincks, W.D., 1972. A check list of British insects, 2nd edition (revised), part 2. Lepidoptera. *Handk. Ident. Br. Insects* **11**(2): 153pp.

Richards, O.W., 1940. The biology of the small white butterfly with special reference to the factors controlling its abundance. *J. anim. Ecol.* **9**: 243-288.

Taylor, E., 1938. Some records of bred Tachinidae (Diptera). *J. Soc. Brit. Ent.* **1**: 221-223.

Wainwright, C.J., 1928. The British Tachinidae. *Trans. ent. Soc. Lond.* **76**: 139-254.

— , 1940. The British Tachinidae, Second Supplement. *Trans. ent. Soc. Lond.* **90**: 411-448.

Delayed wing inflation in *Orthosia incerta* Hufnagel (Lep.: Noctuidae) Clouded Drab.

In January and February 1990 I dug many pupae of *O. incerta* from the bases of deciduous trees (especially alder and white poplar) near Banff, Grampian region. Moths began to emerge in March, invariably in the morning between 08.00 and 11.00 hours GMT. On 6.3.90 two moths emerged about 10.00 hours. One inflated its wings normally after the usual few minutes rest, but the other, a male, hid in a dark corner of the breeding cage with its wings uninflated until I disturbed it at 19.00 hours. Then it became active, and started to inflate its wings at 19.15 hours. Apparently it had some difficulty, the hind wings being inflated first, but by 20.30 hours all the wings were fully expanded and the resulting moth was normal in spite of the delay except that the forewings were not quite flat.

All the other moths which emerged were normal in every way.— ROY LEVERTON, Ordiquhill, Cornhill, Banffshire AB45 2HS.

Brief notes on some coleoptera from the Liverpool Bay area

The purpose of this brief note is to provide information on a number of characteristic beetles of coastal habitats in this area, based on the author's observations, and with reference to background studies kindly provided for me by Mr T. Eccles and the regional office of the Nature Conservancy. The general area is recognised for the quality of its fauna which was dealt with by Chaster, G.W. & Burgess Sopp, E.J. (1903) in their *Coleoptera of the Southport District,* and by Sharp, W.E. (1908) in his *Coleoptera of Lancashire & Cheshire.*

All of the following species are either rare of localised, or are, in the general area, reduced to fragments of their original populations.

Dyschirius thoracicus (Rossi). Fine silty sand below high water mark, Hoylake, Cheshire (SJ28), August 1988.

Laemostenus terricola (Herbst). Relict population by rabbit warrens, dune fragment in Mersey mouth, Seaforth, Lancs (SJ39), August 1987.

Olisthopus rotundatus (Paykull). On wet bare ground amongst rubble and ferrous metal waste, Seaforth, Lancs (SJ39), August 1987.

Amara praetermissa (Sahlberg). Freshfield, Lancs (SD20) long-established population extant on isolated mobile dunes in driest areas. Most northerly western British station.

Amara lucida (Duftschmid). Freshfield, Lancs (SD20), May 1985.

Harpalus neglectus Serville. Dunes, Point or Air, Flintshire (SJ18), August 1987.

Dromius notatus Stephens. Tall herb fen, Hoylake, Cheshire (SJ28), August 1987.

Hypocaccus rugiceps (Duftschmid). Freshfield dunes (SD20) extant. Known from other north-west coast dune systems.

Quedius fulgidus (Fabricius). Taken very locally in Creeping Willow thickets, Hightown, Lancs (SD20), August 1987.

Quedius nigriceps Kraatz. Pine woods on leached dunes, Freshfield, Lancs (SD20), August 1987.

Quedius pallipes Lucas. A largely southern species (widespread in western Mediterranean) but frequent around north-western estuaries. My northernmost record is for Hesketh Marshes on the Ribble (SD42). At Hightown (SD20) occurs inland on sparsely vegetated sand flats.

Gabrius keysianus Sharp. Dee mouth, Hoylake, Cheshire (SD28), August 1987.

Staphylinus brunnipes (Fabricius). Fixed dunes, Freshfield, Lancs (SD20) June 1964 presumed extant. Point of Air, Flintshire (SJ18), August 1987.

Diglotta mersa (Haliday). Below high water mark, Point of Air, Flintshire (SJ18), August 1987.

Aphodius distinctus (Müller) Hightown dunes, Lancs (SD20), May 1985. Declining.

Psammodius caelatus (Leconte). Added to the British list by Colin Johnson

(*Entomologist's mon. Mag.* **111**: 177-183) in 1976, and now firmly established at the site, Freshfield, Lancs (SD20).
Rhizobius litura (Fabricius). Hoylake, Cheshire (SJ28), August 1988. Elytra brown, otherwise black; possibly unique form.
Nephus redtenbacheri (Muslant). Tall herb fen, Hoylake, Cheshire (SJ28).
Ctenioipus sulphureus (Linnaeus). South-west Anglesey (SH36), August 1988. Characteristic of British southern maritime heaths, it occurs on Anglesey together with other such faunal elements (e.g. the heteropterans *Corizus hyscyami* (L.) and *Phytocoris varipes* (Boh.)) but appears not to have crossed Liverpool Bay.
Notoxus monoceros (Linnaeus). Hightown dunes, Lancs (SD20), May 1985.
Arhopalus tristis (Fabricius). Freshfield, Lancs (SD20), extant in *Pinus sylvestris* L. Dispersed locally in shore drift.
Sitona lineellus (Bonsdorf). Ainsdale, Lancs (SD20), fixed dunes, June 1967.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcs WR10 3EP.

[Further work during August 1990 revealed:
Anisodactylus binotatus (F.) sandy pasture (littoral) Leasowe, Wirral, Cheshire (SJ29); spoil heaps, River Weaver, Weston Point, Cheshire (SJ48).
Dromius notatus Ste. Extant, Hoylake. Under foliage *Cakile maritima* Scop., on beach.
Staphylinus brunnipes (F.). Viable populations, Freshfield and Birkdale, Lancs (SD31). Fixed dunes and dune-slacks.
Notoxus monoceros (L.). Swarming (50+ imagines), foredunes, Hoylake, Cheshire, 8.viii.1990.
Sitona lineellus (Bons.). Extant, Freshfield, Lancs (SD20). At Birkdale, Lancs, (SD31) 5.viii.1990. Fixed dunes, sheltering, with many other phytophagous beetles, under logs from substrate temperature over 40°C.
A record of *Agonum thoreyi* Dejean from reedswamp, Hoylake, 8.viii.1990, is of a species somewhat more localised in Western Britain. P.F.W.]

Extraordinary abundance of *Omphaloscelis lunosa* Haw., the Lunar Underwing (Lep.: Noctuidae) in 1990.

Although this is always a common moth in my trap here, the nights of late September 1990 gave unusually large numbers, culminating in 950 *lunosa* out of 1000 moths trapped on 29th September.— R. FAIRCLOUGH, Blencathra, Deanoak Lane, Leigh, Surrey.

R.F. Bretherton C.B., M.A., F.R.E.S.

We are saddened to hear, as we go to press, of the death of Russell Bretherton on 10th January 1991. A distinguished entomologist, Russell was an authority on the Noctuidae and will be well known to readers of the *Record* for his joint papers with Michael Chalmers-Hunt published each year on the immigration of Lepidoptera into the U.K. P.A.S.

A survey of Pamber Forest Nature Reserve, North Hampshire.

The Pamber Forest/Silchester Common SSSI comprises a range of habitats consisting of ancient woodland, heathland and unimproved meadows, some 700 acres in extent. Local nature reserve status is currently only afforded to the 500 acre Pamber Forest complex for which I am responsible.

Traditionally, Pamber was well known to many entomologists though interest waned with the cessation of coppicing in the early 1960s and the subsequent decline in many of the invertebrate populations. Since 1980, nature reserve management has been aimed at improving habitat conditions for a range of invertebrate groups coupled with the gradual compilation of species lists and specialist survey work — currently on Diptera, Aculate Hymenoptera, Coleoptera and Lepidoptera. Needless to say, many of the less well known groups are poorly documented and few old records exist. Major gaps occur in the following groups: Hemiptera, Heteroptera, Hymenoptera, Parasitica, Neuroptera, Mecoptera and Megaloptera.

I am seeking past insect records of Pamber Forest from any readers who may have worked the area in the last few decades. Although prime interest is in the groups mentioned above, all insect records are useful, especially if dated or related to Red Data Book species. If anyone can help, please contact me.— MARTIN DAVEY, 1 Vicarage Cottages, Church Road, Mortimer West End, Berks RG7 2HX.

Wasps, mantises, and the acme of invertebrate predation.

I can cite a parallel for Mr C. Gibson's interesting observation (*Ent. Rec* **102**: 85-86) recounting the predation of a mantis by a wasp. On the Greek island of Zakynthos on 7.x.1985 (*Bull. Hellenic Soc. for the protection of nature* (1987) **39**: 65-68) I became aware of a pending battle between hornets (*Vespa orientalis* L.) and a mature mantis (*Mantis religiosa* L.). A hornet had recognised the mantis as a valuable food resource. The mantis viewed the hornet which in a short time was joined by two others, with total disdain. The entire mass of insects fell to the ground and in the resulting mêlée, the head of the mantis was removed by a hornet and carried off, followed by the disarticulation of the rest of it.

The ranges of *Vespa crabro* L. and *V. orientalis* L. overlap on Zakynthos, although they tend to occupy different niches, and the latter is a scavenger in addition to being a singularly aggressive predator.

Arguably more deadly as a predator of invertebrates are females of the spider *Steatoda paykulliana* (Walckenaer) that I first encountered on Mallorca, Spain, in April 1987. This large, strikingly coloured black and red terrestrial spider lurks under stones, and when exposed tends to approach the source of its disturbance with methodical deliberation. The way that this spider deals with large predatory beetles is truly remarkable, suggesting a bite of exceptional potency. It is able to overcome the large

Carabus morbillosus F., the accomplished predator *Staphylinus olens* Müll. and the robust scarab *Pentodon algirinum* Hbst. Anyone encountering this spider should give it a wide berth.

Water boatmen are recognised as efficient predators in Britain. On 8.ix.1990 in our ponds at Little Comberton, I noticed a water boatman (*Notonecta glauca* L.) take a worker wasp (*Vespula vulgaris* L.) from the surface. The wasp was held across the body of the bug, obviating its inclination to sting. Although the wasp was eventually killed (by piercing the membranes behind the head) death was not a rapid process.

In contrast a frog 21mm long that was caught by a mature *N. glauca* on the same day succumbed almost at once and was carried down over two feet by the bug, a demonstration of their considerable power. On the following day as a third significant observation, a larvae, normally noxious, of a Large White (*Pieris brassicae* L.) fell into the pond and was rapidly despatched by an adult *N. glauca*. Most of it was eventually consumed by a large dystiscid *Acilius sulcatus* (L.) with evident alacrity.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcestershire WR10 13EP.

Unusual wing-drying posture in *Orthosia* species (Lep.: Noctuidae).

In spring 1990 I had many pupae of three *Orthoisia* sp. collected from the foot of trees near Banff, Grampian Region, and was able to observe the behaviour of the emerging moths. Although the breeding cage was furnished with twigs and had roughened sides to facilitate climbing, a minority of the *O. incerta* Hufn. and *O. gothica* L. successfully inflated and dried their wings whilst resting on the floor of the cage. For *O. stabilis* D.&. S. this seemed almost the preferred method, and many crawled but a centimetre or two from the empty pupal case before doing so. All other Lepidoptera I have bred seem to need a vertical or even overhanging surface from which to cling when inflating and drying their wings, otherwise these are deformed or bent. Perhaps the ability to use a horizontal surface is an adaptation to enable these newly-emerged *Orthosia* species to remain hidden if necessary in the ground litter at a season when there is little vegetation to conceal them if they climbed.— ROY LEVERTON, Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

The larval diet of *Dryops ernesti* des Gozis (Col.: Dryopidae).

On 20th March 1990 I observed a few larvae of this species in shallow pools at Saintbury, Gloucestershire. They were actively consuming super-saturated wood tissue of elm (*Ulmus procera* Salsb.) logs submerged in the pools, amongst adults of the same species.—P.F.WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcs WR10 3EP.

***Epiphyas postvittana* Walk. (Lep.: Tortricidae) and *Anomoia purmunda* (Harris) (Dipt. Tephritidae) in Bristol.**

My colleague Andy Pym purchased a Heath-style light trap earlier this year and after its first operation in his garden in Filton, Bristol (ST 60799), on

23rd April 1990, brought me a micro-moth which he did not recognise. This was a male *E. postvittana*. This record adds another vice-county (34, West Gloucestershire) to those from which this moth has been taken and reinforces the impression given by recent reports (*Ent. Rec.* **101**: 277 and **102**: 73) that it is currently expanding its range northwards. I have since observed other specimens in my own Bristol garden (ST 5875), within the same vice-county, and it would appear to be well established here.

I was also interested to find in my garden on 30th August 1990 a tephritid fly, *A. purmunda*. White, in his RES Handbook Vol. 10, pt. 5(a), (1988) gives no Gloucestershire or Somerset records and reports no recent records from the west of England. Audcent (*Proc. Bristol Naturalists' Soc.*) **28** (1950) pt. 1: 65) lists his own captures for Somerset at Clevedon as 5.8.40 and 26.8.44. He also gives Gloucestershire records from Bainbridge Fletcher at Rodborough 2.6.36 and from d'Assis-Fonseca at Durdham Down, Bristol 4.9.47.

The Audcent collection, now housed in the City Museum & Arts Gallery, Bristol (Ac. No. 3/1983), has further specimens taken at light in Clevedon by H. Bird on 17.7.50 and 22.7.50. My own capture and these others are of interest as White's information suggests the adult is only usually seen from April to June.— R.J. BARNETT, City Museum & Art Gallery, Queen's Road, Bristol BS8 1RL.

Schrankia taenialis Hbn. (Lep.: Noctuidae) in N.W. Kent.

After reporting the arrival of a specimen of this moth at my garden m.v. light on 13th July, 1987 (*Entomologist's Rec. J. Var.* **99**: 239) I suggested that *taenialis* might still be a resident of this area despite the previous sighting being as long ago as 1984, for Bexley Park Woods. Further evidence for this suggestion was the arrival of another specimen on 10th August, 1990 at the same light.— B.K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

Observations on the genus _Sepedophilus_ (Col.: Staphylinidae) in Worcestershire.

The following notes provide many new records for Worcestershire and the West Midland region. In some cases the ecology of the species is difficult to quantify. At some sites elsewhere in England, *Sepedophilus littoreus* occupies exclusively* the more usual niche of *Sepedophilus bipunctatus* (dead, soft, often water-saturated heartwood); the association with ants is presumed to be facultative.

Sepedophilus bipunctatus (Gravenhorst). Decayed willow (*Salix fragilis* L.) Evesham (SP04) 30.ix.1988 with *S. testaceus* (F.), new to vice-county. In felled ash on Bredon Hill (SO94) quiescent with ants *Leptothorax acervorum* (F.) 19.ii.1989. Almost certainly northernmost British records.

S. testaceus (Fabricius). Recorded in January, February, March, June,

September, December, in fungoid hardwood trees (although on Mallorca, Spain, it occurs in *Pinus halepensis* Mill.) namely *Castanea, Salix, Ulmus, Quercus, Fraxinus, Populus.* Characteristic of delignified hardwood stumps and logs, in which adults overwinter by deep penetration of the tissues.

S. pedicularius (Gravenhorst). A hygrophilous terricolous species sensitive to land-use change. Sporadic in riparian woods in the Avon Valley e.g. near Tewkesbury, 3.ii.1990.

S. littoreus (Linnaeus). Relatively eurytopic but sporadic. In pile of cut lavender, Broadway (SP03) 9.ix.1988; under pile of Cypress foliage, Evesham town (SP04) 12.x.1988.

S. nigripennis (Fabricius). Near Childswickham (SP03) this widespread essentially xerophilous species occurs repeatedly in early spring with ants *Myrmica rubra* (L.) and in the almost constant company of the pselaphid *Brachygluta fossulata* (Reichenbach). *A Coleopterist's Handbook* (Amcteur Ent. Soc. 1954) makes no reference to any such association.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcs WR10 3EP.

*In the experience of most of us there is nothing exclusive about the ecological preferences of this species, which is found (usually singly) in a variety of habitats as Mr Whitehead suggests below. I have seen no sign of myrmecophily in any of our species.— A.A. ALLEN.

[The identity of a *Sepedophilus* from Little Brockhampton, Gloucs (SP03) has, as far as possible,now been established. The specimen, which was not teneral, was taken in a decaying ash log on 13.ii.1989, and was a clear bright orange throughout, apart from darkened middle antennomeres; no British *Sepedophilus* normally exhibits such coloration.

Dr R. Madge has recently ascribed the specimen to *S. testaceus* (Fabricius), of unusually pale colour. *S. testaceus* occurs widely in the general area of this specimen.— P.F.W.]

Further evidence of *Yponomeuta evonymella* (Linn.) (Lep.: Yponomeutidae) migrating into southern England.

Col. Emmet's article (*Ent. Rec.* **102**: 65-69) suggesting that *Y. evonymella* is a migrant to southern England, is further supported from a large influx of this species noted by myself and other entomologists in Norfolk and Suffolk, which coincided with the widespread migration reported further south and occurring in July 1989. I have summarised this East Anglian invasion below, and would like to thank those fellow recorders who have allowed me to quote their records herein.

East Suffolk (vc25), near Beccles, 6/7 July, none, 7/8 July, approximately 190, 9/10 July, none, 10/11 July, 25, between two and seven recorded nightly until 15/16 July (N. Muddeman); St Olaves, 7/8 July massive invasion of Small Ermines, 8/9 July, less than 50 Small Ermines (late H. Jenner). These observations likely to be for *Y. evonymella.*

East Norfolk (vc27). Brundall, 6/7 July, abundant, 9/10 July, more than 200 (no trap 7/8, 8/9 July) (A.P. Foster); Burgh Common, 7/8 July, many, singletons noted up to 25/26 July (K. Saul).

West Norfolk (vc28), Magdalen, near Kings Lynn, 10/11 July, five (no trap 6/7 or 9/10 July) C. Sheppard); Ringstead, 8/9 July, one, 9/10 July, 17, then ones and twos between 22/23 and 25/26 July; Docking, 10/11 July, four, 11/12 July, three, then singletons on 12/13 and 14/15 July; Titchwell, 6/7 July, two, and 7/8 July, two (R. Skeen).— A.P. FOSTER, c/o Nature Conservancy Council, 60 Bracondale, Norwich, Norfolk NR13 5QN.

Eupithecia dodoneata Guenée (Lep.: Geometridae), the Oak Tree Pug, in Co. Durham.

A single female *E. dodoneata* was caught in the Rothamsted Insect Survey light trap at Shildon, Co. Durham (Site No. 477, O.S. grid ref. NZ 239 262) on 4.v.1990. Its identity was confirmed by examination of the genitalia. This species has not previously been recorded in Co. Durham (T.C. Dunn, pers. comm.) though it is known to be locally common in parts of Yorkshire and has been noted in the bordering Watsonian vice-counties of North-west and North-east Yorkshire (Sutton, S.L. and Beaumont, H.E. (1989). *Butterflies and Moths of Yorkshire*. Yorkshire Naturalists' Union, Doncaster).

Thanks are extended to D. Kipling for operating the trap at Shildon and to T.C. Dunn for confirming the status of this species in Co. Durham.—
ADRIAN M. RILEY, Dept. Entomology and Nematology, AFRC Inst. Arable Crops Res., Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

A dawn flight of _Mompha propinquella_ Staint. (Lep.: Momphidae) and others.

Although dawn tends to be a time rather neglected by lepidopterists it can nevertheless be an occasion when certain species perhaps thought of as being locally scarce are in fact found to be surprisingly common. My appetite for the early hours was whetted one June morning when, at Friday Wood, Colchester, I chanced upon a number of *Telechrysis tripuncta* Haw. (Oecophoridae) flying along a mixed hedgerow in company with the Coleophorids *C. serratella* L. and an early *C. lineola* Zell.

During the hot spell in August 1990 and unable to sleep I instead enjoyed a dawn foray at High Woods, Colchester, and observed around twenty *Mompha propinquella* Staint. flying in a five-year old plantation of mixed trees, with a reasonable ground flora still evident. Previous to this I had only encountered this moth twice in the same area, once at dusk and once at light. Dawn may therefore be the favoured flight time for this species.— B. GOODEY, 298 Ipswich Road, Colchester, Essex CO4 4ET.

A second capture of *Perigona nigriceps* Dej. (Col.: Carabidae) in N.W. Kent (S.E. London).

On the night of 23rd August last I was pleased to find, among vast numbers of *Bradycellus verbasci* Duft, at my m.v. lamp, a single specimen of the diminutive carabid *Perigona nigriceps* Dej. I had not met with the species since 1949, when, on 25th July, one occurred in my former garden at Blackheath near here (Allen, 1950, *Ent. mon. Mag.* **86**: 89-90) — apparently the first in Britain, though it later transpired that the insect had at some previous time been found as an importation in a cargo in the docks. Since the Blackheath occurrence, a mere handful of records of *P. nigriceps* have appeared (I believe, always singletons) from scattered localities in England and Wales. Being a native of warmer countries, this cosmopolitan species is probably having difficulty in establishing itself in the open in Britain. There is nothing surprising about its flying to light, as this appears to be a known habit of the beetle abroad.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

***Celastrina argiolus* L. (Lep.: Lycanidae): its foodplants and its frequency.**

It is not quite clear whether Colin Plant (*Ent. Rec.* **102**: 244) considers that his observation of the Holly Blue's choice of foodplant is noteworthy because it is *Euonymus* or because it is *E. japonica*. Frohawk (1914) recorded *E. europaeus* as a foodplant. Sandars (1939) mentions Spindle Tree (*E. europaeus*) as does Carter (1986).

I agree with the recent correspondents to the *Record* that 1989 was an unusually good year for *argiolus*, even in Cheshire. Perhaps 1990 will prove to have been equally good. On 19th July 1990 I found fresh males to be common along the cliff path west of Ventnor, Isle of Wight. Returning home on 20th July I found several males in the Oxfordshire part of the Bernwood Forest where I collected regularly in the 1940s (without recording *argiolus*). Later the same day I observed scores of specimens flying along ivy-covered Cotswold stone walls in the village of Islip, Oxon, especially in the churchyard and the garden of the Red Lion in the main street. The beer was quite good too.— Dr R.G. AINLEY, "Burford", Briardale Road, Willaston, S. Wirral, Cheshire L64 1TB.

References: Frohawk, F.W. (1914). *Natural History of British Butterflies* vol. II, p.118. London, Hutchinson.

Sandars, E. (1939) *Butterfly Book for the Pocket,* p.218. London, Oxford University Press.

Carter D.J. & Hargreaves B. (1986). *Field Guide to Caterpillars in Britain & Europe,* p.47. London, Collins.

Two notable Staphylinidae (Col.) at light in 1976.

The two species recorded hereunder both visited my m.v. lamp during the very hot spell in the summer of 1976 beginning in late June, when insects, including species not seen here before and seldom or never since, abounded at the lamp. Both were single males, only lately set and securely identified.

Leptacinus intermedius Donis. (25.vi.) (Allen, 1990, *Ent. Rec.* **102**: 239). Probably the first recognised occurrence in Kent and the London area — published records being almost nil. As I point out in the paper just cited, I have seen none since the species was described in 1936 from Windsor, but have a note of two finds (Surrey and Cheshire); though only males are determinable with certainty, it is likely to prove widespread. Local habitats have yielded me only the common *L. pusillus* Steph., but I have had *batychrus* Gyll. a little farther out, at Plumstead.

Brachyusa concolor Er. (27.vi.) A rare species previously found by me only in Windsor Park very sparsely on mud round a pond, in 1936 (cf. Donisthorpe, 1939, *Prel. List. Col. Winds. For.*: 34). This appears to be the typical habitat. To the records, all in the London area, given by Fowler (1888, *Col. Brit. Isl.* **2**: 145) I have added the following: "In dead leaves and rubbish, courtyard of British Museum (E.A. Waterhouse)" — a curious record (source not noted) suggesting a casual stray. The supplementary volume (1913, **6**: 225) includes one as far north as Bredon, Worcs (Blatch), and it is interesting that in the last few years Mr P.F. Whitehead has met with it in the same district.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

***Thera juniperata* L. (Lep.: Geometridae) in North London (Middlesex).**

A male *Thera juniperata* (Juniper Carpet) was taken in my North London garden which abuts Coppetts Wood Nature Reserve (TQ 276 916) on 22nd October 1988. De Worms (1957, The Moths of London and its surroundings Part IV, *Lond. Nat.* 1956: 81) gives only T.D.A. Cockerell's (1891, A preliminary list of the insect fauna of Middlesex, 2. *Entomologist* **224**: 29-33) "Whitton" record for Middlesex and Colin Plant (London Natural History Society Lepidoptera Recorder for the London area) informs me that there have been only two subsequent records for the county viz. Potters Bar 1964 (Jackson) and Hampstead Heath 1985 (Ray Softly).

Native Juniper (*J. communis* L.) was formerly native on heaths and commons in the county (e.g. Harefield, Hampstead and Finchley) but has long been extinct (last record 1746) according to D.H. Kent (1975, *The Historical Flora of Middlesex,* Ray Society, London). Recent notes in the *Record* (**95**: 64; **100**; 93, 237) suggest that introduced juniper cultivars in gardens may be serving as foodplants for this widely distributed but very local species.— K.G.V. SMITH, 70 Hollickwood Avenue, London N12 0LT.

***Lilioceris lilii* Scop. (Col. Chrysomelidae) in suburban N.W. Kent.**

After sweeping vegetation (*Glyceria* etc.) in the dried -out bed of a pond at the edge of Oxleas Wood, Shooters Hill, near here during a warm spell in the afternoon of 26th September last, I was astounded to see clinging to the

side of my net a specimen of this beautiful insect. Its occurrence in such an unusual situation, far from a known foodplant, was possibly not unconnected with the fact that the site is but a stone's throw from a major motorway. However it may have reached the spot — whether flown from a garden not far off, or accidentally transported from an indefinite distance — the beetle can doubtless only be regarded as a stray.

Records of the Lily beetle from Kent seem very few. I have no definite information on occurrences in the county since 1957, but before that date it had been found at Chattenden near Rochester in 1895 (Fox-Wilson, 1943, *Proc. R. ent. Soc. Lond.* (A) **18**: 85), and there are ancient records from localities on the Kent side of London: Deptford, Camberwell, Peckham (Stephens, and cited by Fowler); I have an example marked "Mr Groves/Lewisham/1859". The Shooters Hill find is evidently not the first in this general area, since my late friend A.W. Gould once told me that it turned up in the garden of an acquaintance somewhere in the Blackheath district; but the infestation, I understood, was short-lived. As pointed out by B.J. Southgate (1959, *Ent.Gaz.* **10** (4): 139), the species has for many years been centred on the district around Chobham in Surrey, where alone I had previously taken it; other records being (as is probably still the case) only sporadic.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Anaspis bohemica Schilsky (Col.: Scraptiidae) at Loch Garten, Inverness-shire.

On a visit to the RSPB Loch Garten Reserve on 7.vi.90, we beat from young pine trees carrying male blossoms a number of *Anaspis* which proved later to be a mixture of *A. bohemica* and *A. rufilabris* in roughly equal proportions. Both sexes of *bohemica* were present (three males and five females).

As far as we are aware, this is only the third time the species has been recorded in Britain. In bringing the species forward as British, our good friend Mr A.A. Allen (1975 *Ent. Rec.* **87**: 269) recorded that the species was taken by the late G.H. Ashe at Forest Lodge in a part of Abernethy Forest about 7km distant from where we found it. Some years later, one of us (Owen *Ent. Rec.* **100**: 191) captured a female near Coylumbridge at a distance of about 12km from Forest Lodge. Ashe's specimens were beaten from broom whereas the Coylumbridge specimen was beaten from dead pine branches in an area which had been clear-felled. The occurrence of the species on male pine blossom has been noted previously in Denmark (Allen 1975 *loc. sit.*).

Most, if not all, *Anaspis* species develop in dead wood. The association of *A. bohemica* with pine in Scotland and elsewhere suggests that this species develops in dead pine wood. It may be that, where we found our specimens, there was a considerable quantity of dead pine branches which

had arisen from thinning operations on young pine trees and which had been deliberately left lying on the ground in small stacks as a conservation measure.

We thank Mr Stewart Taylor, Warden for permission to study beetles on the RSPB Loch Garten Reserve.

M.L. LUFF, Department of Agricultural and Environmental Science, The University, Newcastle upon Tyne NE1 7RU.
J.A. OWEN, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

Unusually early emergence of Lepidoptera in spring 1990 noticed as far north as Banffshire.

No doubt most observers witnessed the unusually early emergence of many moths in the warm spring of 1990. However, this was not confined to southern Britain, but was very noticeable as far north as Banffshire (vc94). As there are few recorders in that area, especially in spring, the following April records from the favoured Deveron valley near Banff may be of interest:

Nut-tree Tussock (*Colocasia coryli* L.) 20.iv.90 (two)
Garden carpet (*Xanthorhoe fluctuata* L.) 22.iv.90
Scalloped Hazel (*Odontopera bidentata* Cl.) 23.iv.90
Brown Silver-line (*Petrophora chlorosata* Scop.) 24.iv.90
Peppered Moth (*Biston betularia* L.) 28.iv.90 (three)
Lunar Thorn (*Selenia lunularia* Hb.) 28.iv.90
White Ermine (*Spilosoma lubricipeda* L.) 28.iv.90
Small Phoenix (*Ecliptopera silaceata* D.& S.) 29.iv.90
Common Pug (*Eupethicia vulgata* Haw.) 29.iv.90
Puss Moth (*Cerura vinula* L.) 30.iv.90.

Most of these would be exceptional dates for first sightings even in Sussex, and I suspect that northern population are adapted to respond to relatively lower temperatures than are populations of the same species further south.— ROY LEVERTON, Ordiquhill, Cornhill, Banffshire AB45 2HS.

A note on *Leptura sanquinolenta* Linnaeus (Col.: Cerambycidae)

This beetle has been recorded in Scotland by various observers but, apart from its occurrence in areas with long established woods of Scots' Pine (*Pinus sylvestris* L.) and the fondness of the adults for blossoms, very few original observations seem to have been made on its life history in Britain and practically nothing published. Fowler (1922 *Entomologist's mon. Mag.* **58**: 208) records the successful rearing of two specimens from larvae taken at Nethy Bridge in 1921 but does not mention the pabulus in which the larvae were found.

In view of the paucity of this information, it seems worth recording that, on 8.vi.90, I came across pupae of the species in the trunk of a fallen dead pine in Abernethy Forest, Scotland and reared adults from some of them.

The trunk in which the pupae were found was without bark and had a well weathered surface. From its appearance and from the soft texture of the wood, the tree was estimated to have been dead for between 10 and 20 years. The diameter of the trunk at the relevant point was about 40cm and the pupae occurred in chambers arranged along the axis of the trunk 2 - 3 cm under the surface of the wood on the side of the trunk which was exposed to the sun. About 30cm of the trunk was examined and this contained six pupae. There could well have been other pupae on either side of the section examined. No larvae or adults of this or any other species were found but there were holes in the surface of the wood which were probably made by the weevil *Eremotes ater* Linnaeus. The emergence holes made by the adults (in captivity) were approximately round and 3 - 4mm in diameter.

Duffy (1952 *A Monograph of the immature stages of British and imported Timber beetles (Cerambycidae)*, British Museum, Natural History) states that the eggs of the species are laid in stumps and boles of pine, especially those of young dead pines with bark charred by fire. The site of these observations is not mentioned but, as Duffy states that he had no British larvae or pupae to examine, it was probably in Scandinavia or continental Europe. Duffy's comments suggest that the eggs are laid in relatively freshly dead wood with bark adhering. This contrasts with my observations for, estimating the development period at 3 - 4 years, the eggs in this instance would have been laid in a log which was already well rotted and almost certainly without bark.

I thank Mr E.M. Mathew, Regional Officer, Nature Conservancy Council for permission to undertake studies in the Abernethy National Reserve and Mr Stewart Taylor for helpful discussion on the age of the wood.— J.A. Owen, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

Towards a safe and practical pest-repellent

Mr A.A. Allen, in his contribution to this subject (*Ent. Rec.* **102**: 184-185), must surely have struck a major entomological nerve. It is a matter to which I too have been attending for some little time, and on which Mr Allen had previously advised me. Conditions here are such that the term self-contained is hardly an euphemism; quite a bit of time is spent in the company of my specimens and their fumigant-saturated air.

This is an introductory note only and much remains to be done. I have been using, since the early part of this year Camphor and Peppermint Oils impregnated on high-pinned natural sponge cubes. Recently other essential oils have been added to the range. My response to breathing naphthalene-enriched air appeared to have been one of increasing minor irritation. In addition I had observed a mature larva of *Anthrenus* alive but "worried" in naphthalene-saturated conditions, all of which have led me now to dispense with it.

The first thing to be said about the essential oils is that it is a pleasure to

work with them (in fact I can confirm chemotropism!). It is however their aromatic nature which is a measure of their volatility, and here there may be one source of difficulty; the application frequency may be considerable, particularly in the case of Peppermint Oil. The efficacy of these oils may be tested in various ways, by observations within cabinet drawers and by experimentation with live *Anthrenus* larvae. In the drawer, Camphor Oil applied to a sponge cube definitely slowed the metabolic rate of last instar *Anthrenus* larvae. I have not yet gauged the effect of these oils as a deterrent and this is crucial, for a first instar larval *Anthrenus* can wreak havoc without detection. As painful proof of it, I have what are now only the splendidly arranged tarsi of *Coryphinium angusticolle* Ste.

The final instar larvae of *Anthrenus* are surprisingly tenacious. I introduced adult larvae to substrates saturated with (a) Clove Oil to which they showed no reaction, (b) Camphor Oil by which they were deterred, and (c) Cedarwood Oil.* In the last case death ensued, but this could have been aided by blockage of the spiracles. Much more experimentation is required and the spectrum of materials may have to be widened. Those wishing to conduct their own trials may like to know of the following sources:

The Body Shop (most city high streets for their perfectly designated "Aromatherapy" range). Lavender and Peppermint Oils.

Bio-Science Supplies, 4 Long Mill North, Wednesfield, Wolverhampton, West Midlands WV11 1JD. (Tel: 0902-725531).

Northern Biological Supplies Ltd, 3 Betts Avenue, Martlesham Heath, Ipswich IP5 7RH. Cedarwood Oil, Methyl Benzoate.

I wish to thank Mr J. Eric Marson (Northern Biological Supplies) and Mr G. Ashton (Bio-Science Supplies) for information and comment.—
P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcestershire WR10 3EP.

*On this oil, see Allen, *Ent. Rec.* **102**: 297.— A.A.A.

[Since writing the above, the Research Department of The Body Shop (whom I gratefully thank) have acknowledged my request for clarification of a specific matter. They have confirmed that the carriers of their essential oils are either Almond Oil or Soya Bean Oil which may volatilise more slowly than the essential ingredients. This suggests that pure Cedarwood Oil should be the principal object of further experimentation. P.F.W.]

***Psammotis pulveralis* Hbn. (Lep.: Pyralidae) and other migrant Lepidoptera in the Dungeness area, 1990.**

On the morning of 4th August 1990, whilst examining the catch of the m.v. trap run at the Bird Observatory, Dungeness, Kent, both myself and David Walker, the warden, noticed a small, unfamiliar sandy-coloured moth fluttering under the perspex. It proved to be an example of *Psammotis pulveralis,* a pyralid moth last taken in Britain in 1903. Around this period, several other interesting species were taken in the Dungeness area, most not

traditionally recognised as migrants, none known to breed in the area, and all suggestive of a short distance, cross-channel migration.

Among the most interesting were the sixth British record of the Marbled Grey, *Cryphia raptricula* D. & S. and the first Kent record of the Pyralid *Pediasia fascelinella* Hbn., both at Dungeness; three specimens of *Pelosia muscerda* Hufn., from Dungeness, Greatstone and Ham Street; two *Orthonama obstipata* Fab. and single examples of *Cyclophora linearia* Hbn., *Hyloicus pinastri* L. and *Photedes fluxa* Hbn. all at Dungeness. Single examples of *Idaea vulpinaria* H.-S. from Greatstone and Dungeness. All the above were taken between 27th July and 4th August 1990.

Other noteworthy migrants taken at Dungeness during the year included an early *Trichoplusia ni* Hbn. on 23rd February (sharing the trap with one *Orthosia gothica*!), a male *Catocala fraxini* L. on 27th September, the eighth or ninth British, and first Kent record of the pyralid *Hymenia recurvalis* Fab. on 17th October.— SEAN CLANCY, Delhi Cottage, Dungeness, Kent TN29 9NE.

BOOKS AND JOURNALS

Paperback reprints from Harley Books

Harley Books are continuing the welcome policy of issuing their major works in paperback format at most reasonable prices. The term paperback is a little misleading — the books are stitched and bound in an illustrated, tough and durable limp covering. The two volumes considered here are not exact reprints of the originals, but the differences are noted below.

The butterflies of Great Britain and Ireland (Hesperiidae to Nymphalidae) edited by **A.M. Emmet** and **J. Heath.** Illustrated by Richard Lewington and Tim Freed. 380pp, 24 coloured plates. 22 figs, 83 maps. 1990. Price £24.95.

Originally reviewed in *Ent. Rec.* **101**: 282-284 under the title *The moths and butterflies of Great Britain and Ireland,* the reference to moths has been dropped to reflect the free-standing text of this volume. The text has been reprinted with a few minor revisions, but the plates are the original printing. At around half the price of the hardback edition, a bargain.

Grasshoppers and allied insects of Great Britain and Ireland by **J.A. Marshall** and **E.C.M. Haes.** 254pp, 12 coloured plates, 22 figs, 102 maps. 1990. Price £15.95.

Originally reviewed in *Ent. Rec.* **101**: 41-44 this printing contains additional significant records as a postscript to the preface, and an addendum to the off-shore island and vice-county records and to the gazeteer. Minor corrigenda are also included. The inside back cover carries life-size silhouettes of representative species. The bookmark is available for extra cost, as is the Sound Guide.

The moths and butterflies of Exmoor National Park by **John Robbins.** 66pp. A5 booklet, wire stitched. Exmoor Natural History Society 1990 (available from ENHS 26 Alcombe Road, Minehead, Somerset, price £2.50 inc. p&p.)

This latest publication of the Exmoor National History Society decribes itself as a check-list, recording some 1030 species of Lepidoptera noted from within the boundaries of the National Park. The introduction includes a brief treatment of habitat and remarks on the Lepidoptera in general. The bulk of the publication is devoted to the systematic list. For the butterflies and larger moths entries give the scientific and English names, status (with a choice of 13 categories) and the vice-county — the park spanning v.c. 4 and 5. For the microlepidoptera the foodplants are also given. There are brief remarks on each of the families.

It is gratifying to see such a comprehensive list covering all of the Lepidoptera. It would have been instructive to know the dates, localities and recorders for some of the more interesting species, but this no doubt would have been beyond a work of this scope.The major criticism must be in the citation of foodplants for the microlepidoptera — the text does not make it clear if a species has actually been bred from the cited foodplant on Exmoor — in most instances I suspect that this is not the case. Despite these comments, this is a worthy publication, very reasonably priced.

Paul Sokoloff

***Oedippus*: a new journal devoted to the conservation of Lepidoptera.**

Oedippus is a new journal launched by the Gesellschaft für Schmetterlings-schutz (the Society for the Conservation of Butterflies and Moths) which itself was founded as recently as 30th October 1988. Named after the False Ringlet *Coenonympha oedippus* Fab., a butterfly considered to be one of the most threatened of all European species and already extinct in Germany, it is being edited by Dr Otakar Kudrna, well known to British entomologists, and is expected to appear at least once a year. *Oedippus* will be devoted to comprehensive original papers on all aspects of the scientific conservation of Lepidoptera, especially practical measures, and such related topics such as ecology and biogeography, which will be published in either German or English with summaries in both languages.

This first issue of *Oedippus* is almost entirely devoted to a comprehensive paper by the editor and Lothar Mayer on the establishment of a practical aid programme for the conservation of the last remaining populations of the Danube Clouded Yellow *Colias myrmidone* (Esper) in Bavaria, a seriously endangered species in Germany. Although in German, there is a long summary in English and the paper is illustrated throughout with black and white photographs, and clear maps and tables.

C. myrmidone is at the western limit of its range in Bavaria. A survey by the authors in 1988 and 1989 revealed that it survives for certain on only three sites north of Regensburg which contain small discrete breeding

populations situated on south-facing grassland in the valley of a tributary of the Danube. Here they face probable extinction from the natural successional climax of the vegetation and their isolation in intensively cultivated land. In response to representations to the Bavarian Ministry of the Environment, support was forthcoming for a study of which the *Oedippus* paper is a more detailed version. It not only analyses the former and current status of *C. myrmidone* in Bavaria, but also elsewhere within its European range. Much information is also given on its taxonomy and ecology, and the paper concludes with practical recommendations for its conservation and re-introduction into at least two former localities once the habitat has been restored to the right condition.

Reviews of Emmet & Heath's *The Moths and Butterflies of Great Britain and Ireland,* Volume 7, part 1: *The Butterflies* and E.J.M. Warren's *The Country Diary of Creating a Butterfly Garden* occupy the final two pages of this issue, which costs DM15 from Dr Otakar Kudrna, Karl-Straub-Str. 21, D-8740, Bad Neustadt-Salz, West Germany.

The Gesellschaft für Schmetterlingsschutz (GfS), registered as a charity, is a learned society concerned with the conservation of indigenous Lepidoptera, especially those of central Europe, but membership is open to entomologists from all nations. Since 1988 it has organised the international Rhöner Symposium für Schmetterlingsschutz, held each year in the Naturpark Rhön Oberelsbach, Bavaria, and plans to establish a research station for Lepidoptera conservation there. Further information, including subscription rates, can be obtained from Dr Kudrna at the above address.

John F. Burton

Provisional atlas of the hoverflies of Essex by **R.G. Payne** 32pp. 161 maps. A4, paper. Essex Biological Records Centre's publication No. 7. 1989. Price £2.40 inc. post, from Central Museum, Victoria Avenue, Southend-on-Sea, Essex.

This large format work presents the current outcomes of a nine-year survey of Essex hoverflies, mapping their distribution on a 10km square basis. Only records made since 1970 are included, but there are notes on the 13 pre-1970 species. There is a detailed "gazeteer" of good hoverfly sites followed by a distribution map and brief comment for each of the 161 recorded species. A considerable amount of work must have gone into compiling these records for insects which are often local, rare or very rare in Essex. This publication should provide a useful stimulus for further study.

An atlas of the butterflies of Northumberland and Durham by **N.J. Cook.** 71pp. Numerous maps. A4 duplicated, spiral bound. Northumberland Biological Records Centre special publication No. 5. 1990. Price £6.00.

In 1987 Dunn and Parrack produced *The butterflies and moths of Northumberland and Durham* (reviewed *Ent. Rec.* **100**: 96). This larger

format publication treats the butterflies in Atlas format, with the text simplified for the general reader, and introducing hints on identification for each of the species described. As a self-contained publication for the reader interested particularly in the butterflies it has some value — the maps are full page size rather than the "thumbnail" size in the original publication and, of course, contains additional records. Apart from this the publication adds little for those who already have the definitive list.

Recent publications from the Nature Conservancy Council

The NCC continue to produce inexpensive and useful publications for the non-specialist. All of those noted below are attractively produced, well written and superbly illustrated for books of their price. They provide an excellent introduction to their respective topics, and are available from Publications Dept BRV, Nature Conservancy Council, Northminster House, Peterborough PE1 1UA.

Coppiced Woodlands: their management for wildlife by **R.J. Fuller** and **M.S. Warren.** 32pp, many figs and colour illustrations. A5, paper. 1990. Price £2.50.

This booklet deals with one of the traditional methods of managing the trees themselves, in which they are cut down periodically and allowed to regrow from the cut stumps or "stools". It covers the history of coppicing and its decline, its value for wildlife, ways of managing coppice for wildlife and the options for managing neglected coppice.

Woodland rides and glades: their management for wildlife by **M.S. Warren** and **R.J. Fuller.** 32pp. Many figs and coloured illustrations. A5, paper. 1990. Price £2.50.

This booklet explains the importance of open areas in woodlands for many species of wild plants and animals, discussing the flora of rides and glades, their invertebrate life (especially butterflies and moths), reptiles and amphibians, birds and mammals. It goes on to describe management techniques designed to benefit wildlife, concentrating on regimes of ride cutting.

Climatic change and nature conservation by **S. Woodin.** 133pp. Several figs. A5, paper. Price £0.95p.

This little booklet, intended for the general public, explains the basic concepts behind the global warming story very clearly with the aid of graphic drawings and tables, and quotable facts and figures. Plants, animals and birds are used to illustrate the likely effects of climatic change on wildlife in Britain. Practical tips are offered on ways to save energy and avoid harmful products.The booklet concludes by suggesting what we can do to help our wildlife ourselves.

STUDIES ON VARIATION IN BRITISH LEPIDOPTERA

THE COCKAYNE RESEARCH FELLOWSHIP

The *Cockayne Trust,* founded by E.A. Cockayne in 1951, was set up for the promotion, encouragement and study of entomology by making improvements to and furnishing information about the Rothschild-Cockayne-Kettlewell Collection. The "RCK", devoted solely to the study of British Lepidoptera, is part of the National Collection of Insects and is maintained by the Natural History Museum at South Kensington. Within the spirit of the original Cockayne Trust Deed, the Trustees have now set up *The Cockayne Research Fellowship,* a separate charity linked to and supported by the *Cockayne Trust,* to stimulate new work on British Lepidoptera.

Applications are invited to *The Cockayne Research Fellowship* for awards to support original research on variation in British Lepidoptera. Awards are limited to a maximum of £1,000 per year and, depending on progress, may be renewable annually for a maximum of three years. Applications are welcome from amateur and professional lepidopterists alike.

Projects must concern original research on variation (genetic, phenetic, taxonomic, geographical or phenological) affecting one or more species of Lepidoptera within the British Isles. Successful applications are likely to involve proposals to work on early stages in addition to adults, and at least some breeding or experimental investigations. Projects should, at least in part, be based on, re-interpret, or otherwise take into account, information already stored in the RCK collections, and will be expected to add new material to it. A yearly report will be required by the Trustees, on which any consideration of renewal will also depend. At the end of the project (maximum of three years), a final report will be required and publication of the results will be expected, if appropriate. A further grant could be requested to assist with publication, if required.

Anyone interested should obtain an application form by writing to the Trustees of The Cockayne Research Fellowship, c/o The Keeper of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD. The Trustees of the Fellowship have sole responsibility for all matters connected with disbursement of *Fellowship* funds, and their decisions on all matters, including choice of candidates, levels of award and renewals, will be final. Applications should be received by 1st March each year.

Donations, or other contributions, to either the *Cockayne Trust* or *The Cockayne Research Fellowship* are also invited; enquiries about contributions should be directed to the Keeper of Entomology, at the same address.

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We currently have limited stocks of second-hand issues of all volumes from 69 (1957) to 96 (1984) including those with volumes 1 and 2 of the *Butterflies and moths of Kent,* which were published as supplements. Prices a very reasonable £6.50 per volume — £8 each for 1960 and 1961 volumes. Also a few of the scarce early volumes as follows: 2 (1891) and 3 (1892) at £12 each; 14 (1902), 16 (1904), 19 (1907), 20 (1908), 21 (1909), 23 (1911), 24 (1912), 57 (1945), 58 (1946), 61 (1949), 62 (1950) — all at £10 each.

We also have new copies of volumes from 1984 to date at the issue subscription price (£10 for 1984 - 1987; £15 for 1988 - 1990) — with a 20% discount on two or more volumes purchased. Postage extra on all orders — please write first to the Editor, or telephone on 0689-859034.

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

(Founded by J.W. TUTT on 15th April 1890)

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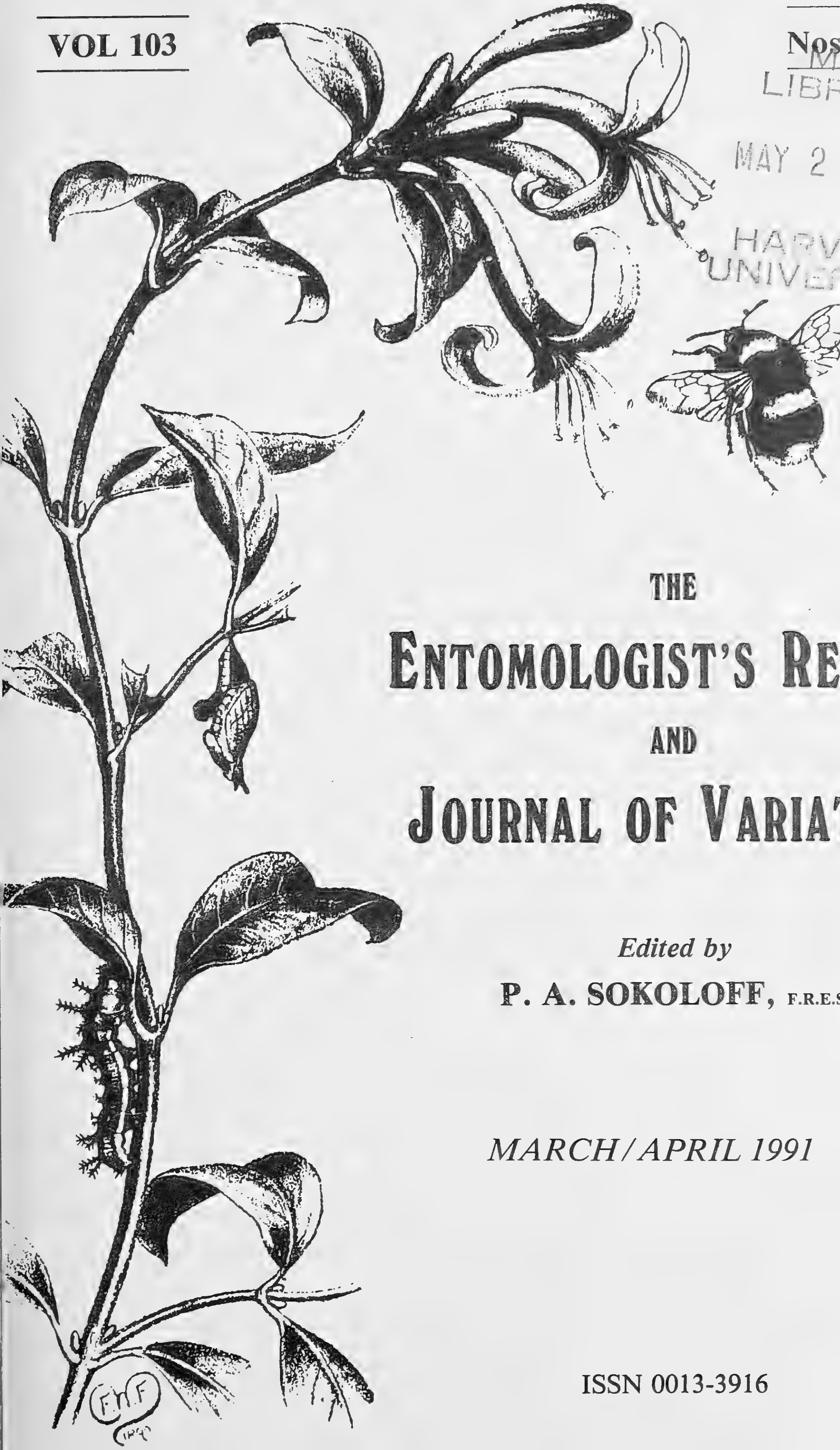

THE
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It would greatly help the Editor if material submitted for publication were typed and double spaced. Two copies are preferred. Please DO NOT use block capitals and DO NOT underline anything except scientific names. Word-processed text should not use italic, bold or compressed typeface. References quoted within the text can be abbreviated (eg Ent. Rec.), but those collected at the end of a paper should follow the standard *World List* abbreviations (eg Entomologist's Rec. J. Var.). When in doubt try to follow the style and format of material in a current issue of the Record.

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THE RELATIVE ABUNDANCE AND FLIGHT PERIOD OF *MESAPAMEA* SPP. (LEP.: NOCTUIDAE) AT THREE ENGLISH LOCALITIES

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GENITALIA studies on the genus *Mesapamea* over the recent years have shown that the British fauna consists of three species of *Mesapamea: M. secalis, M. didyma* and *M. remmi* (Jordan 1986; 1989). Since the discovery that the genus consisted not of one species in Britain but of several closely allied species, our knowledge of this group has progressed little.

Whilst many specimens in collections may be dissected to confirm their identity, there remains very few studies in which large random samples are examined. The examination of collections has greatly enhanced the information of distribution, especially of *M. secalis* and *M. didyma,* but can be of limited use concerning other aspects of the species biology and in some cases, such as relative frequency, may be misleading.

This paper addresses the questions of flight period and relative abundance between the species.

Sampling Methods

All the samples were collected using a 125w. MB/U lamp in a Robinson trap. They were taken from three localities of differing habitat:

(1) Weyhill (OS grid SU303461) in Hampshire (v.c.12) during 1984 and 1985. This site was amongst open farmland with arable fields and permanent *Lolium* pasture immediately surrounding the trap site.

(2) Virginia Water (OS grid SU997698) in Surrey (v.c.17) during 1985. This site was in open parkland dominated by large clumps of mixed deciduous trees.

(3) Swanton Morley (OS grid TG019188) in Norfolk (v.c.28) during 1985. This site was amongst rough grassland adjacent to a large gravel pit and marshland.

The Weyhill and Virginia Water samples were collected on pre-selected nights throughout the flight period of the species. The Swanton Morley sample however was collected during one week only and therefore can be used for a comparison of relative abundance, but is omitted from the section on flight period as the data is unsuitable.

The identity of all individuals was determined by full dissection of the genitalia. The criteria previously described (Jordan 1986; 1989) being used to separate the species.

Flight Period

The histograms display the numbers of each species caught expressed as weekly totals. They are intended solely for a comparison of timing and duration of flight period and no inferences should be drawn from the

height of peaks, but instead from any overlap in season and coincidence of peaks between species.

The actual numbers of moths trapped on the selected nights during any week may vary for a number of reasons, such as temperature, wind velocity and many other factors. It is reasonable to assume though that in such closely allied species any such factors would act upon the species in question similarly.

The histograms (Figs. 1, 2 and 3) show clearly an overlap of phenology between *M. secalis* and *M. didyma* with the peaks of capture of both species coinciding well throughout the flight period. The very low occurrence of *M. remmi* makes any comment on its flight period virtually impossible, although all three specimens caught occurred within the normal season for the other two species. Thus it appears that these species have complete synchrony in their flight period.

This data agrees well with that of Riley and Southwood (1988) in which their specimens of *M. didyma* occurred throughout the flight period of *M. secalis.*

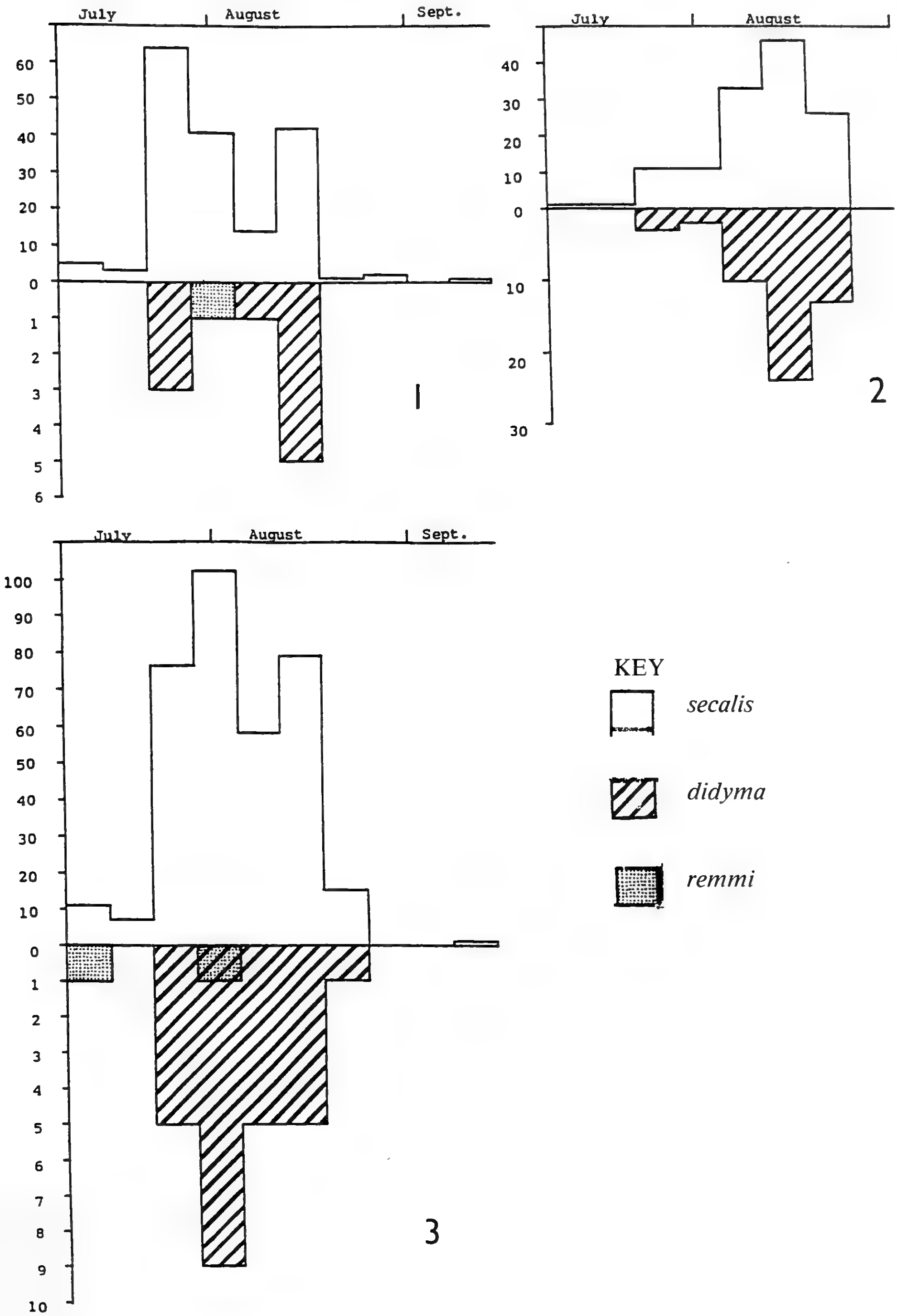
Relative Abundance

Table 1 shows the relative proportions of each species in each sample, expressed both in actual numbers caught and as a percentage of the total in each *Mesapamea* sample.

At all three sites investigated here *M. secalis* was the more frequent species. This has been the case in other smaller samples from other sites (Jordan unpublished). In Shropshire, Riley and Southwood (1988) also found *M. secalis* to be more frequent. In certain parts of Cornwall *M. didyma* is as common as *M. secalis* (Spalding pers. comm.), but normally in Britain *M. didyma* appears to be the scarcer of the two, and in many areas, for example Weyhill, occurs at a very low proportion.

This contradicts many of the initial estimates on the relative abundance of these species. Skinner (1984) mentions *M. didyma* and of it he says "A provisional examination of British material suggests that both this species and *M. secalis* share the same types of habitat and occur equally commonly over much of England."

Many of these estimates come from examination of collections where *M. didyma* is usually disproportionately represented. This situation arises because of the highly polymorphic nature of this species group. Most collections aim to give a representation of the degree to which a species varies, hence specimens of different forms are collected to illustrate any such variety. Each form in the collection appears at a proportion difference from that to which it does in the population. Thus the least common forms are preferentially collected. If two or more species were being confused as a single one then this preferential collecting of forms could result instead in a bias towards one species.



Weekly totals of *Mesapamea secalis/didyma/remmi* captured at:

Fig. 1: Weyhill during 1984.

Fig. 2: Virginia Water during 1985.

Fig. 3: Weyhill during 1985.

Relating this hypothetical situation to *M. secalis* and *M. didyma,* then collections in the past have been built up under the impression that a single polymorphic species was being represented. Upon the subsequent division of *M. secalis* to reveal *M. didyma* then many of these collections are being examined to see if both species are present. The disproportional representation of forms (and hence species) makes *M. didyma* appear much more frequent in collections than it actually is in the field.

This hypothesis is strongly supported when the relative frequencies of different colour forms between the species are analysed (Jordan in prep.), certain forms do indeed occur at much higher frequencies in *M. didyma* than in *M. secalis.*

This highlights the care required when attempting to draw any conclusions concerning frequency largely from material in collections and illustrates the need for more research based on random samples from the field.

Table 1.

The relative frequencies of *Mesapamea secalis/didyma/remmi* amongst four random samples.

		Number of each species in sample (Percentage of n given in parentheses)		
Locality and Date	**Total sample (n)**	***M. secalis***	***M. didyma***	***M. remmi***
Weyhill, Hants v.c.12. 1984	183	173 (94.5)	9 (4.9)	1 (0.5)
Weyhill, Hants v.c.12. 1985	376	349 (92.8)	25 (6.6)	2 (0.5)
Virginia Water, Surrey v.c.17 1985	181	129 (71.3)	52 (28.7)	0
Swanton Morley, Norfolk v.c.28. 1985	38	33 (86.8)	5 (13.2)	0

Conclusions

It appears that these three species fly at the same time of the year but that they normally occur at different frequencies, with *M. secalis* generally more abundant than *M. didyma,* and *M. remmi* remaining an exceedingly elusive species so far found at only one English locality. *Mesapamea secalis* and *M. didyma* occur in similar habitats, although more research is required to determine if there are any differing preferences between the species.

It would be particularly interesting to learn of any areas where *M. didyma* predominates, similarly any further occurrence of *M. remmi* would be particularly noteworthy in view of the species' international scarcity.

Acknowledgements

Many thanks to the Zoology Department of Royal Holloway and Bedford New College for use of their facilities. Thanks also to R.M. Jordan and M.R. Perrow for assistance in collecting the samples.

References

Jordan, M.J.R., 1986: The genitalia of the species pair *Mesapamea secalis* L. and *Mesapamea secalella* Remm (Lep.: Noctuidae). *Entomologist's Rec. J. Var.* **98**: 41-44.

— , 1989: *Mesapamea remmi* Rezbanyai-Reser, 1985 (Lep.: Noctuidae). A species new to Britain. *Entomologist's Rec. J. Var.* **101**: 161-165.

Riley, A.M. & Southwood, J.E., 1988: *Mesapamea* species (Lep.: Noctuidae) in Shropshire in 1986. *Entomologist's Rec. J. Var.* **100**: 257-258.

Skinner, B., 1984: *Colour identification guide to moths of the British Isles.* Viking.

Postscript: A recent publication (Lempke, B.J., 1991, *Ent. Ber., Amstr.* **51**(2): 17-22) reports on a similar survey. Both species are common in the Netherlands. Overall, the impression is that *didyma* slightly outnumbers *secalis,* although local differences in the ratio occur. Remm originally separated the species on size, and this feature was checked here. In 767 random specimens (340 *secalis,* 417 *didyma*) the wingspan was measured. In the smaller specimens *didyma* predominated, with *secalis* being more common in the larger ones. The overlap was, however, so great that wingspan has no diagnostic value.

No other constant external feature could be found to separate the two.

P.A.S. & B.J.L.

***Colydium elongatum* (Fabricius) (Col.: Colydiidae) in Wiltshire, Berkshire and Surrey.**

For over a century, *Colydium elongatum* was known in Britain only from the New Forest area. Recently, however, examples have turned up in other areas in Southern England and we thought it might be useful to summarise these records as interim documentation of the presumed spread of this beetle. The records are as follows:—

Wiltshire

Grovely Wood: 1 - 5 exx. on 10 occasions between 10.iv.70 and 8.iv.75; on beech and birch (once), sometimes associated with *Platypus* or *Xyloterus* sp. or both. D.R. Nash.

Langley Wood: 12.iv.74 1 ex. on fallen oak. D.R.Nash.

Burnt Ground Wood: 31.v.74 several exx. on beech log. D.R. Nash.

Great Ridge: 13.viii.80 2 exx. on sycamore log, associated with *Xyloterus signatum* and *X. domesticus.* D.R. Nash.

Savernake Forest: 29.v.76 1 ex. from a rotten beech. C. MacKechnie-Jarvis (1976 *Proc. Brit. ent. nat. Hist. Soc.* **9**: 122).

Berkshire

Windsor Great Park: 8.vi.86 1 ex. under sound bark of fallen oak bough D. Porter (1989 *Brit. J. ent. nat. Hist.* **2**: 53).

Windsor Great Park: 12.v.89 1 ex. on sawn surface of oak log. J.A. Owen.

Surrey

Ashstead Common: 25.v.87 2 exx. under bark of burnt oak. I.S. Menzies & J.A. Owen.

Ashstead Common. 1 - several exx. on 7 occasions between 27.vi.87 to 22.vi.88 mostly running over or lying under the bark on the burnt trunks of old oaks that were dead but standing. On 3 occasions, the beetles were seen entering borings of *Platypus* which was well established in the trunks. I.S. Menzies.

Even in the New Forest, *C. elongatum* has traditionally been regarded as a very rare insect (Fowler W.W. 1889 *The Coleoptera of the British Islands* **3**: 187; Joy, N.F. 1932 *A Practical Handbook of British Beetles* p.516). In our experience and that of colleagues, it appears, in recent years, to have become less rare in its New Forest stronghold, occasionally being locally common. Ashstead Common and Windsor Great Park, at least, are areas which have been well studied by coleopterists over the past hundred years and it seems almost certain that its appearance recently in these areas is due to a spread from the New Forest, perhaps due to a rising population there, rather than to it being previously overlooked. The reason why a beetle which has been very rare and confined to an area becomes commoner and spreads, as in this instance, remains to be determined. It is, of course, a matter for satisfaction that the process is not in the reverse direction.

The association of *Colydium* with *Platypus* on which it is considered to be predatory has long been recognised (Fowler *loc. cit.*). Our observations suggest that it may also be predatory on other scolytids such as *Xyloterus.* This is supported indirectly by the fact that *Colydium* occurs in coniferous trees as well as deciduous trees (Vogt, H. 1967 in *Die Käfer Mitteleuropas* band 7 ed H. Freude, K.W. Harde & G.A. Lohse) whereas *Platypus* appears to be confined to deciduous trees.

D.R.N. thanks the Earl of Pembroke for allowing him to study at Grovely Wood, Mr N. Anderson for permission to record at Langley and Burnt Ground Woods within the Hampworth Estate and the Lord Lieutenant of Wiltshire for allowing studies at Great Ridge. J.A.O. thanks the Nature Conservancy Council and the Crown Estates Office for permission to study beetles in Windsor Great Park.

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REMINISCENCES OF AN AMATEUR LEPIDOPTERIST, 1920-90

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1. Seaford, 1918 - 23

OUTSIDE the washroom, a line of boys passed one by one before a teacher, who daily inspected both sides of both hands of each and glanced at head and neck-wear before allowing the boy to proceed to the dining room where, together with sixty boarders, he sat down to breakfast.

Between breakfast and morning prayers, towards the end of the summer term, a smaller line of boys, budding entomologists all, queued before Mrs Caroline Trollope, the headmaster's wife. This group consisted of the envied possessors of puss-moth caterpillars (*Cerura vinula* L.).

About the age of eleven, the spirit of Nimrod, that "mighty hunter before the Lord" got into many a boy. Girls, then segregated in separate institutions, were, we understood, more liable to dream of horses or the ballet. The Sussex Downs, not far from the school, had long since lost any big game they might have had, and the sheep that safely grazed there were taboo to the only holders of small arms in Seaford, the warlike Canadians in a camp the other side of our football-field. Across the Channel, in 1918 at least, the occasional rumble of guns reached their ears . . .

There remained therefore, for boys so inspired, two possible hunting targets — birds or bugs. Andrew Harvey Trollope, our headmaster, had banned catapults, doubtless reckoning such weapons might smash his, or a neighbour's, windows, or even blind a boy in his charge. Thus by a process of elimination, the pursuit of butterflies and moths was considered by Mr and Mrs Trollope the safest diversion and one to be judiciously encouraged.

Only rarely were the boys of Tyttenhanger Lodge able to walk on the Sussex Downs. Their walks in Seaford, however, took them regularly past the privet hedges and poplars of the gardens of their own school and others. Late in the summer term Puss-moth caterpillars, with their weird fork-tails and terrifying attitudes appeared regularly on poplar leaves within reach of schoolboy fingers, and, at the start of the Michaelmas term, those of the Privet Hawk (*Sphinx ligustri* L.).

One had only to put one or more of these in a white cardboard shoebox with holes punched in the top and one hole in the bottom, through which a twig of foodplant drew up water from a receptacle. The voracious pets, growing, would strip a twig of all its leaves in twenty-four hours. Thus it was that Caroline Trollope, furnished with a number of poplar sprays picked by her gardener, dispensed them to the envied pet-breeders.

"The bigger spray, Mrs Trollope, 'cos mine is a bunjie-phizz" (by which nickname the boys distinguished the helmeted last-instar larva of *vinula*), one would say, and then: "Oh, thank you Mrs Trollope".

The sight of a large caterpillar chewing the fresh leaves was a fascinating lesson in insect morphology which drew envious groups to the class-room lockers; we would discuss and try to demonstrate what it might be like if our own jaws moved sideways instead of up and down. Once spun up in a hard cocoon, chewed out of the shoebox interior, the pet became less interesting and might even be forgotten about. Whether we succeeded in breeding it through to the winged moth or not, we had learned early how much more rewarding it was to breed up an insect than merely to kill a butterfly in a net with a neat pinch; in any case to gain possession of a killing-bottle, pins and setting-board presented insuperable difficulties at that age. There was no talk of local rarities either; almost every species was a wonder and a prize.

2. The Cotswolds (1923 - 28)

My next school was Cheltenham College. It had ten times as many boarders as Tyttenhanger Lodge. Despite its military reputation, and the sports-worship usual in such schools various extra-curricular interests were encouraged, and regular outings into the countryside for photography, or natural history, would be led by a sympathetic master. The wooded hills ringing the town, provided a wonderful introduction to the study of butterflies and moths. "Brusher" (H.F.) Jones took the "bug-hunters" under his wing and we quickly learnt the names of the fritillaries, blues, burnets, etc. The first edition of South's butterflies, p. 179 mentioned cryptic details about the Gloucestershire Large Blue (*Maculinea arion* L.) a local rarity which Jones told us was extinct in most of its former sites, such as Hilcot and Cranham Common. So our values became more sophisticated and Meadow Browns (*Maniola jurtina* L.) were soon spurned as common trash.

Amazingly, in 1926, two boys in our group, called B. Cooper and J.F. Kitching, discovered a still thriving colony of the Large Blue on a hilltop between Sheepscombe and Cranham, bringing back one or two larvae and pupae, some of which later hatched. I have preserved the detailed diary which I made during those years, and in June and July they also took the adult flying there. In the following year they hatched out a further couple, male and female, and with Jones's help endeavoured to breed from them with thyme and ants in a cage on the roof of the science laboratory.

Though I had visited the same locality in 1926 it was only in 1927 that I succeeded in finding two pupae by turning over slabs of limestone which covered some ants' nests on the flat hill-top. Two weeks later a Large Blue hatched from one of them, to become the only British example in my collection (Norwich Castle Museum).

It was, of course, a case of "beginner's luck". As a beginner, I was unaware of the fact that in the twenties various collectors knew of this and other localities for the Large Blue. For a good account of the state of

affairs in Gloucestershire those interested should refer to Muggleton, 1973 and 1974, especially the first. Russell Bretherton, from his home in Gloucester, had in fact anticipated the Cheltonian brigade in capturing the Sheepscombe Large Blue. Later, it appears, he was the last to see it flying there (in 1937) and on a war-time visit observed in 1943 that the flat hill-top had been ploughed, doubtless as part of the nation's war effort. This was doubtless the final straw in the extinction of that particular colony.

As for Jones and Cooper's breeding-cage on the roof at Cheltenham, I regret to say that a 1927 storm blew it down and the ants and butterflies either escaped or were drowned.

3. East Anglia

Cambridge, where I completed my education (1928 - 32) had several local rarities of butterfly and moth, equivalent to the Cotswold Large Blue. Two of the four butterflies, however, had become extinct (both Fenland specialities): the Large Copper (*Lycaena dispar* Haworth), since many years; and the Swallowtail (*Papilio machaon* L.) more recently; endeavours had not yet been made to replant them at Woodwalton and Wicken Fens respectively. On rising ground to the north, outside cycle range but accessible in Bernard Kettlewell's car, the Black Hairstreak, *Strymonidia pruni* L. at Warboys wood, and the Chequered Skipper, *Carterocephalus palaemon* Pallas, at Bedford Purlieus, still flew, and on 30th May 1929 with Bernard and A.E. Stubbs, I secured one or two of the latter.

As the Swallowtail still thrived in my native stamping-ground, the Norfolk Broads, its absence from Wicken, to which I cycled five times in my first summer term, did not worry me. Of the two moth prizes, the fen rarity, *Athetis pallustris* Hübner fluttered, not to my sheet, but to Demuth's; and the more urban speciality, *Cryphia muralis* ab. *impar* Warren was obtainable on our college walls. Worsley-Wood and Cockayne had bred the latter and shewn us it was conspecific with the green *muralis* forms, which on a holiday trip I found at Swanage.

However, readers can refer to Demuth's lively account (*Ent. Rec.* **96**: 264-272) of our group's doings. He and Bernard came up to Caius two years before I to Jesus, and both went down at the end of my first year. Moreover, I have published elsewhere accounts of some of my East Coast activities (Wiltshire 1979a) and some of the Cambridge scene too (Wiltshire 1979b); such details can be omitted here.

That year I was a typical case of bug-virus-infection, for my dear mother in her innocence told some bridge pals at Gorleseton-on-Sea that I was a very keen bugger. They were respectable ladies and perhaps equally innocent; for they showed no shock at my mother's misleading terminology.

The precarious survival in the British Isles of species numerous and widespread in many parts of Europe, their curious isolation in endangered

wetland or maritime localities, enhanced the value of every new specimen in the eyes of both amateur and professional British lepidopterist; and old specimens, if authenticated as British, went for comparatively large sums at London auctions. Untrained professionals were beyond the pale in our eyes; were they not reputed to have decimated the local rarities in their British sites and to try to swindle rich amateurs by relabelling European examples? Nor were we attracted by the prospect of a career as an "applied entomologist" but we met such, as were attracted and studying zoology rather than medicine or the arts, amicably enough in meetings of the entomological section of the university Natural History Society.

Only a few speakers at these meetings had any inkling of the fascination of the exotic butterfly scene; one such, whom I remember, being the young O.W. Richards, just home from Trinidad, who described the Neotropical scene and its Morphos and spoke of the rich upper canopy layers of the rain forests. I forget the name of one dull but mature speaker who summed up the branches of entomology which were then opening to those with such ambitions, and who stated that physiology and biochemistry were the disciplines to acquire, rather than taxonomy. The basic task of classification had been completed, and in the brave new world we did not question this comforting assertion. To our group, with access to excellent pocket handbooks facilitating identification, it seemed plausible enough. Later, however, I found that revision after revision and descriptions of many new species yearly kept appearing, through the next six decades, and much of the old taxonomy framework was questioned; and I noticed that adepts in applied entomology came cap in hand to Museum taxonomists hardly numerous enough to perfect the taxonomy they professed; in any case, a new branch of taxonomy, called cladism, with brand new terminology and a laborious new procedure, has made their old tasks no easier, especially as a last decade of economy and staff cuts confounded them, even driving them to publicised strikes. Recently the time-sanctified usage "British Museum (Natural History)" sank to a junior synonym "The Natural History Museum" (a vernacular name favoured by politicians). *Plus ca change, plus c'est la même chose,* one might quote, but perhaps these trends point to an imminent transformation into a Disneyland, where a quacking Donald Dodo will welcome those willing to pay to see the facade behind which still lurk treasures and unique types, the cynosure of the world's scientists.

Little did Bernard Kettlewell and I imagine that we would, thirty years later, meet and bug-hunt in Darwin's neotropical forests, of which Richards spoke. There will be a later place for reminiscences of his visit to Rio, where I was Consul, 1958-63.

After that first year, I stopped rowing on the Cam and suspended the pursuit of the local bug, while continuing theatre-going and listening to music. My surplus energies were diverted to contributing to and sub-editing

the undergraduate weekly journal *The Granta* and participating in the earliest productions and south-coast tours of Meldrum and Cooke's Mummers, which encouraged undergraduate females to act. The bug-virus was suppressed, but persisted.

At the end of my third year, the deepening economic depression made future jobs a problem for graduates. A plutocrat uncle, if you had one, might still open a door into some trade or industry, but otherwise there seemed to be but two options: passing the Home or Indian civil service exam, or becoming a schoolmaster. Despite all extra-curricular diversions, I had dutifully pursued my classical studies as far as gaining a degree with honours but for my fourth year I added French, German and Italian and Economics, with a view to service overseas, and in 1932 just scraped into the Consular service, sitting with seven hundred other candidates.

In those days of privilege, before economy cuts in the service had been heard of, and before consuls and diplomats became targets for kidnappers or bombs, this was an attractive prospect, at least to me. Had I gone straight to New York, would I have gone on with the lepidoptera? Being informed that I was to proceed to Beirut, in the Lebanon (a French mandate at that time) I debated with my old Cambridge mentor, Worsley Wood, of what use a killing-bottle, a net and South's three little volumes would be there. Wood suggested I look for the four volumes of Seitz on Palaearctic lepidoptera in a London second-hand book-store.

Foyles, in Charing Cross Road, was then rather different from what it is today. There were stacks of large and learned old books in fair condition at reasonable prices. Ten pounds sufficed to acquire the four tomes suggested by Wood. They are still on my shelves today, with the subsequently appearing supplementary volumes, each one worth more than the price I paid for all four, despite constant use during the forty or fifty years that have passed since their purchase second-hand.

So it was that in November 1932 I sailed on a P.& O. liner from Tilbury to Port Said with four hefty volumes of Seitz and a butterfly net in my luggage. My main purpose was to learn Arabic and become a full Vice-Consul; but I had this hobby in reserve.

References (Parts 1-3)

Demuth, P. (1979). Obituary of Dr H.B.D. Kettlewell, *Entomologist's Rec. J. Var.* **91**: 253-257.

— , (1984-5). Reminiscences of an elderly entomologist, *ibid,* **96**: 189-195, 264-272; **97**: 13-19, 46-50, 97-105.

Muggleton, J., 1973. Some aspects of the history and Ecology of the Blue Butterflies in the Cotswolds. *Proc. Brit. ent. nat. Hist. Soc.,* **6**: 77-84.

— , 1974. Dates of appearance of *Maculinea arion* (Linnaeus) (Lep.: Lycaenidae) adults in Gloucestershire. *Entomologist's Gaz.* **25**: 239-244.

Wiltshire, E.P. (1979a). Recollections of a Suffolk naturalist in the early days of the Society. *Trans. Suff. Nat.* **18**(1): 70-74.

— , (1979b). Obituary of H.B.D. Kettlewell. *Proc. Brit. ent. nat. Hist. Soc.* **12**(3/4): 101-103, with Plate.

4. First steps in the Middle East.

At Beirut I learnt that I was not the first British Vice-Consul to take an interest in Lebanese butterflies. Robert Eldon Ellison had preceded me by about three years, and in a less junior capacity. He was now in Morocco and kindly wrote to me with instructions where to find the most interesting butterflies, including the very local blue which he had discovered on the highest mountain in the country and was now known as *Albulina ellisoni* Pfeiffer. He assured me that if I climbed the Cedar Mountain to a height of six thousand feet I would find the rare "Ellison's Blue" in fair numbers, and nowhere else in the world.

This put the rare Large Blue of the Cotswold in a new perspective, for that species, however local and rare in England, extended, as I now realise, from Western Europe to the Far East.

I made friends with a young French archaeologist who was also a skiing pioneer in the Lebanon and frequently visited this "Cedar Mountain" in North Lebanon in winter, as it had the best slopes for his sport. Of course this was long before the first ski-lifts were built either in Europe or the Lebanon. In would take him about four hours trudging up hill, with skis on, to reach the high point at about ten thousand feet, where his descent began, which he would perform in about ten minutes. He assured me I would have no difficulty in summer in reaching that height, as in fact Ellison had already done.

On 14th July 1934, therefore (my second year in the Lebanon, as it happened) I left the Cedars Hotel at Bsherreh, and started trudging up the zigzag path, admiring the local flora on the way. Halfway up I met the only person on the mountain, a shepherd who obligingly milked one of his goats to quench my thirst. These animals were browsing on the steep slopes where little vegetation higher than a few inches from the ground was to be seen, except for masses of a pale-leaved vetch, whose taste the goats evidently disliked. I assumed that Ellison's Blue had been feeding on these, as it flew commonly up there. As for catching the special high mountain moths, I contented myself with bottling those attracted to the hotel lights. In sub-tropical climates the mountains high enough to receive snow are inhabited by a special flora and fauna, isolated from the lower slopes and plains climatically.

About thirty years later I again mounted to this summit, and in the company of Dr Lionel Higgins and his wife Nesta, but this time we mounted by ski-lift. A little lower down, for he descended on foot, Lionel was delighted to find Ellison's Blue in abundance, in fact right down to the cedar grove which was full of attractive herbs protected from the goats by a stone wall and a kind of religious taboo, useful for conservation, for they were known to the local Maronites as "The Lord's Cedars" (Arz-el-Rabb).

(To be continued)

SPODOPTERA CILIUM GUEN., (LEP.: NOCTUIDAE). A SPECIES NEW TO BRITAIN, AND OTHER RARE MIGRANTS AT THE LIZARD

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ON THE night of 29th September 1990 at Coverack on the Lizard Peninsula, Cornwall, a small noctuid appeared after midnight in a mv trap set in a beautifully overgrown garden. The moth resembled *Spodoptera exigua* Hb. although it was slightly darker and more variegated. The resting posture was also atypical, *S. exigua* sits with its wings inclined to the vertical but this specimen held its wings in a similar position to that adopted by *Hoplodrina ambigua* D. & S. or *blanda* D. & S. After some thought (and after establishing that it was a male, of course!) it was provisionally identified as an aberrant *S. exigua.*

The following night I visited a scrubby area near the cliffs north of Coverack. Shortly after lighting up, on the second tour of the lights, a perfect male *Polymixis xanthomista* D. & S. arrived at an ultra violet tube; whilst leaning down to box it a blurred white shape irrorated with red and black appeared on the side of the trap. Even out of the corner of the eye its identity was unmistakable and seen directly it was a vision of glory, an immaculate male *Utethesia pulchella* L.

Nothing much happened for the rest of the night despite favourable winds until 02.00 hours when two *Mythimna loreyi* Dup. bundled into the trap followed by two *M. unipuncta* Haw., two *M. vitellina* Hb., a fertile female *Heliothis armigera* Hb. and two *Agrius convolvuli* L. Later that night a fine selection of pyrales arrived including no less than five *Uresiphita polygonalis* D. & S., one large *Dioryctria abietella* D. & S. (presumably a migrant) and a *Margaritia sticticalis* L. Migrant geometers were represented by a male *Othonama obstipata* Fabr. and ten *Rhodometra sacraria* L. Interestingly the commoner migrants were very thin on the ground.

The following night, again shortly after dusk, two more perfect *U. pulchella* came to mv together with *H. armigera, H. peltigera* D. & S., half a dozen *O. obstipata,* a male *A. convolvuli,* two *M. unipuncta* and four *M. vitellina* (all of the pale straw form). On returning to our cottage I was almost disappointed not to find another *U. pulchella;* however on lifting up the wooden bar on which the bulb is mounted a soft "mothy" feeling under my fingers turned out to be the fourth *U. pulchella.* This last example (also a male) was very faded whilst the coloration of the others was pristine.

Intensive trapping for the remainder of the week yielded little in the way of rare migrants although a few more *R. sacraria,* an infertile female *Mythimna albipuncta* D. & S. and one *Palpita unionalis* Hb. were seen.

Macroglossum stellatarum L. was exceptionally common and was observed every day on almost every buddleia bush even feeding in heavy rain.

The moth provisionally identified as *S. exigua* was then shown at the BENHS exhibition and evoked considerable debate as to its identity; the consensus of opinion was that it was probably *Spodoptera cilium* Guen. and this has since been confirmed as such by Dr Ian Kitching at the British Museum (Natural History).

S. cilium is a species whose normal range is essentially African and Eastern although it does extend into southern Spain and France as well as the Canaries. The diagnostic feature in the male is the ciliated antennae which are very distinct from *S. exigua* when viewed under a binocular microscope. Although the species is variable there are certain characteristics which are reasonably consistent. The forewings are slightly broader than *S. exigua* and the moth is generally darker, more variegated and less glossy in appearance. Characteristic of *S. exigua* is the pinkish coloration of the orbicular stigma, in *S. cilium* this stigma is pale but not pink. The reniform stigma is conspicuously dark. On the hind wings the brownish shading which runs up the veins from the outer margin towards the base in *S. exigua* only extends a short distance and the overall appearance of the hindwing is a translucent white lacking the pearly sheen of *S. exigua*. At rest my example sat in a very different posture to that adopted by *S. exigua*. The specimen will be photographed for publication in the 1991 exhibition plate in the *British Journal of Entomology and Natural History*.

The larva feeds on various species of grass and reaches pest status in parts of Africa especially favouring close cut turf on golf courses.

Acknowledgements

My thanks to Dr Ian Kitching for confirming the specimen and for providing the article on the genus *Spodoptera*.

Reference

Calle, J. *Noctuidos Espanoles*.

Brown and Dewhurst, The genus *Spodoptera* in Africa and the Near East. *Bull. Ent. Res.* **65**: 221-262.

***Ledra aurita* (L. 1758) (Auch.: Cicadellidae) at light in Worcestershire (SO94).**

On the night of 2.viii.1990 an adult *Ledra aurita* (L.) was taken in an m.v. light trap at Little Comberton, Worcestershire. This is a southern species in Britain, known to be attracted to light. It breeds in Worcestershire and Gloucestershire very locally on oak (*Quercus robur* L.).— H.S. HEMSLEY-HALL, Orchard Drive, Little Comberton, Worcs WR10 3EP.

ON THE SEPARATION OF *PATROBUS ATRORUFUS* STRÖM AND *P. ASSIMILIS* CHAUD. (COL.: CARABIDAE)

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USING our standard British works, coleopterists who are not Carabid specialists may well, at times, find themselves in doubt over the discrimination of this pair of very closely similar species. It is true that the aedeagus and parameres differ very decisively in the two — they are figured e.g. by Hansen (1968. 122) and Freude (1976: 132) — but for the rapid yet accurate determination of dried specimens, good reliable external characters are needed. To judge by a recent overhaul of my material (which turned out to be partly confused) such characters certainly exist, while others seem less stable or can be hard to appreciate. Because several of those given by various much-used authors fall into this class, it seemed desirable to review the subject briefly but critically.

The species may to a certain extent be separated by locality and terrain, if known. *P. assimilis* is an upland insect of dry elevated habitats, though less markedly montane that the third British *Patrobus, septentrionis* Dej.; and is therefore not found in southern England (though its occurrence in Devon would hardly be surprising). *P. atrorufus,* on the other hand, is essentially a lowland (and more widespread) species inhabiting moister, more sheltered situations as a rule; however, it can ascend to modest elevations where it may, very possibly, mix with populations of *P. assimilis* — for instance in the Pennines. It is in such cases that confusion is likeliest. Thus, specimens long ago given me by my late friend A.W. Gould as *assimilis* and placed as such in my collection, together with all those in his own, have now proved to be *atrorufus;* they are from Corbar, Buxton (Derbyshire) and Grin Low (Cumberland), and include no *assimilis* (which I have only from Scotland). It is clear, therefore, that while all south-English *Patrobus* should be *atrorufus,* examples from farther north — even from hill country — are not always *assimilis.*

Lindroth (1974), in the latest work on the British Carabidae, neither figures nor even mentions the aedeagal differences, and the various characters he gives (p. 41) appear to be of unequal value. That which he does figure and puts first in the key, relating to the fronto-lateral part of the head, is sometimes not clear, since the course of the frontal furrow may be irregular or indistinct, or be indicated only by some punctures; or again, it may differ somewhat on the two sides. "Antennae slenderer", under *atrorufus,* I cannot appreciate; "longer" would be more apt. However, "Antennae shorter, segments more rounded" under *assimilis* is a good and constant character, and the slightly differing length of these organs in the two species is perceptible to the naked eye. Joy (1932: 354) gives *only* this and the small difference in average size. Though Lindroth states that the

first and third segments are of equal length in *assimilis,* the latter usually appears the longer, but less obviously so than in *atrorufus.* Of the remaining key-characters he gives, the best seem to be those of the elytral striae, which are clear on comparison (in *atrorufus* more finely punctate and much less evanescent apically).

Fowler (1887: 129-130), besides giving these latter differences, states that the third elytral interval is plainly wider than the second in *assimilis,* but not in *excavatus* (i.e. *atrorufus*). The other works I have at hand do not mention this character, but in fact it would appear from my very limited material to be an excellent one, definite and not dependent on comparison of the two species. I would add another which I believe will prove satisfactory, concerning the basal pronotal foveae: in *assimilis* the whole fovea is evenly and rather strongly punctate, whereas in *atrorufus* its outer part is almost impunctate and smooth, with the external ridge or keel better developed and more distinctly set off.

To sum up: in practice it will probably be found sufficient to use, conjointly, the characters of the antennae, pronotal foveae, and elytral striae to effect reliable determination with the minimum of trouble.

References

Fowler, W.W., 1887. *The Coleoptera of the British Islands,* **1**. London.

Freude, H., in Freude, H., Harde, K.W., & Lohse, G.A., 1976. *Die Käfer Mitteleuropas,* **2**. Krefeld.

Hansen, V., 1968. *Danmarks Fauna 76* (Biller 24). Kobenhavn.

Joy, N.H., 1932. *A practical handbook of British beetles,* **1**. London.

Lindroth, C.H., 1974. *Handbooks for the Identification of British Insects* **4**(2): Coleoptera, Carabidae. *R. ent. Soc.* London.

Plodia interpunctella Hübner, the Indian meal moth (Lep.: Pyralidae) in Bedfordshire.

On a recent visit to one of our local pet stores, I noticed a great many pyralid moths flying around aquarium lights and resting on the shop's inner walls. Several were caught (much to the amusement of the other customers and the proprietor) and taken home for identification. Reference to Goater, B. (*British Pyralid Moths,* Harley, Colchester, 1986) revealed them to be *P. interpunctella.* With the permission of the shop's owner, I subsequently examined a tub of rabbit food and found it to be infested with lepidopterous larvae. A handful of the cereal and grain mixture was removed and a steady stream of adult *P. interpunctella* have since emerged. The business in question is primarily a tropical fish supplier and the temperature and humidity in the shop are kept very high by the large number of heated fish tanks. Perhaps as a consequence of this, *P. interpunctella* appears to be continuously brooded therein.— ADRIAN M. RILEY, 35 Park Mount, Harpenden, Herts AL5 3AS.

THE GENERA *LAMIA* F., *MESOSA* LATR. AND *LEIOPUS* SERV., (COL.: LAMIIDAE) IN THE BRITISH ISLES

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Introduction

THESE three species, describing the first of our very short list of native Lamiids, comprise one of our rarest Coleoptera, last seen nearly four decades ago, a very scarce local Longhorn, and lastly, one of the most attractive and fortunately still common examples of the family; the latter two beetles were known to and figured by Martyn (1792).

County and vice-county symbols are explained in Kaufmann (1989): italicised letters indicate a widely spread insect and those in brackets still require confirmatory records.

Lamia textor L.

A very local and extremely scarce Longhorn, the largest specimens of which may measure some 3cm long, *L. textor,* the Weaver Beetle, now on the vulnerable list (Shirt, 1987), has (or had) a widely scattered distribution largely confined to the south of England, two western, and a very few other counties in the remainder of the British Isles, about some records from which, it is felt, there are lingering doubts (Speight, 1988).

ENGLAND: CB (EK) EX GW NS *SH* WW
WALES: MN
SCOTLAND: AM PM
IRELAND: NK

Several examples of this handsome beetle were last captured in mid-Scotland in the early 1950s, *teste* Dr P. Hyman: whether or not it should be regarded as another relict species of the ancient Caledonian forest is debatable.

Skidmore & Johnson (1967) in their Merioneth list record what were identified as *Lamia* borings in willow trees from several localities; that these galleries were indeed made by this beetle has since been confirmed by one of the co-authors of the Merioneth paper (P. Skidmore *in litt.,* who added that the sites and workings were difficult to locate). The last record of the capture of *Lamia* in Wales dates back to the beginning of the century (Jackson, 1904).

L. textor continues to be illustrated in a number of popular entomological books; the likelihood of finding it is matched only by the rarity of the beetle itself.

The destructive larva infests the healthy undeveloped roots, branches and trunks (but no higher than two metres up) of both young trees and the moist decaying boles of aspen, birch, creeping willow, grey willow, osier beds, in which it causes considerable damage (Chinery, 1986), black and

variegated poplar — only occasionally — pussy willow and weeping willow. The larval tunnels are more often than not confined to the roots, and as the beetle frequents marshy, even boggy woodlands, sometimes difficult to penetrate, its larval depredations may go undetected. Its only predator is the Ichneumon, *Ephialtes messor* Grav.

Pupation takes place in spring or even earlier within a cell formed inside the pith wood of the roots or the base of the brood plant. Metamorphosis lasts from two to four years.

The imagines emerge as early as March, continuing until October, the main months of eclosion being June and July. Rather than bite through a fresh exit hole, when several adults eclode at much the same time, they will use the same tunnel and egress already opened up by a preceding beetle, a peculiarity which helps to mask the little evidence of *Lamia*'s presence above ground.

The beetle is known to nibble the leaves of its host tree, but it is rarely seen in daylight as it sits motionless, camouflaged by its dull coloration, on the protruding roots or branches of its favourite pabula, willows and sallows. As night approaches, these secretive beetles become more active, crawling quietly through the long damp grass stems of their surroundings.

Their reticence has not protected them: provincial museum collections contain quite long series of these interesting beetles, collected in earlier times when *Lamia,* much sought after, appeared to be more common, such that, for instance, in two favoured habitats around Bath and in the Clifton Woods near Bristol, they were soon reduced in numbers. The beetle is omitted from the main Gloucestershire list (Atty, 1983) but is reinstated as occurring once in 1857 in the Appendix on the Bristol fauna. Towards the end of last century, except in the above-named areas, *Lamia* was already regarded as rare (Fowler, 1890). Over-collection probably happened, too, in other rather isolated localities where the insect was formerly known to occur.

Modern farming methods, the draining of marshland and the uprooting of *Salix* scrub have almost certainly contributed to the continued decline of this strange endangered species.

Mesosa nebulosa F.

A very uncommon and scarce beetle with a range confined to the English counties below a line roughly south of the R. Wye to the Wash; its distribution is westerly on the one side and easterly on the other, linked by the Thames and Severn basins.

ENGLAND: BK CB EK ES GE GW HF HU MM NE SE *SH* SR WK WO

The polyphagous larva is found almost exclusively in the dead upper branches of alder, aspen, beech, birch, buckthorn, crabapple, elm, false acacia, hawthorn, hazel, holly, hornbeam, horsechestnut, lime, oak (especially), old orchard trees, poplar, walnut, wild cherry and willow.

The larvae are parasitised by these Ichneumonids and Braconids:— *Ephialtes messor* Grav., *Helcon annulicornis* Nees, *Pyracmon melanurus* Holmgr. and *Xorides irrigator* F.

Pupation takes place in mid-summer, the adults ecloding during July and August; they do not, however, emerge into the open but overwinter until the following year when they occur from as early as March until August. Metamorphosis takes from two to three years to complete.

Mesosa, nonetheless, is very difficult to find and is often inaccessible because it rarely descends from the topmost branches of its host tree. Specimens are most likely to be obtained by chiselling them out from storm-scattered broken off dead pieces of thick twigs and the smaller branches of trees lying on the ground.

This insect is evidently not a floricole.

Leiopus nebulosus **L.**

This pretty little Longhorn is generally distributed and locally common throughout the British Isles.

ENGLAND: BD BK BX CB *CH CU* DM *DT* DY EC *EK EN ES EX EY GE* GW HF *HT* HU IW L *LR MX MY* ND NE NH *NM NO* NS NW NY *OX SD* SE SH SL SN (SP) *SR* SS *ST* SY *WK* WL WN WO WS *WW WX* WY

WALES: BR DB CR GM MG *MN* PB RA

SCOTLAND: AM AS *BW* DF DN *ED* EI EL KB LA LL M PM SG WI WT

IRELAND: AN CL KK NG NK (NT) QC RO WA WC WI

The amphixylophagous larva is found infesting the dead branches and sometimes the stumps and standing decaying timber of the following:— alder, apple, ash, *Baccharis,* beech, birch, crabapple, *Cydonia,* dogrose, elm, false acacia, hawthorn, hazel, holly, hornbeam, horsechestnut, larch, laurel, maple, various orchard trees, pear, *Prunus acuparia, P. armenica, P. communis, P. persica,* Scots pine, spruce, walnut and willow.

The larvae are host to almost a score of parasitic Hymenoptera; these are:— *Cenocoelius agriculator* L., *C. canalis* Nees, *Deuteroxorides albitarsus* Grav., *D. igneus* Ratz., *D. imperator* Ratz., *Doryctes pomarius* Reinb., *Ephialtes tuberculatus* Fourc., *Habrobracon palpebrator* Ratz., Habrocytus dahlbomi Ratz., *Helcon carinator* Nees, *H. tardator* Nees, *Iphiaulax impostor* Scop., *Ischnocerus seticornis* Kr., *Meteorus tabidus* Ws., *Orthocentrus fulvipes* Gr., *Phaegaduon detestator* Thunb., *Xorides brachylabris* Kriechb., *X. filiformis* Grav., *X. indicatorius* Latr., *X. praecatorius* F., and *X. securiformis* F.

Pupation normally takes place in late spring during April and May; occasionally, however, when the life cycle is prolonged from its customary annual duration into a second year, the adults will overwinter in the host tree.

The imagines are nearly always found resting from April until August on the parent plant whence they may be simply captured by tapping the dead branches. Although they take to the wing in summer, they are not blossom seeking insects, but they are sometimes found on *Angelica* and dead nettle, and they may be swept off old palings and dead hedgerows.

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References

Atty, D.B., 1983. *Coleoptera of Gloucestershire,* Cheltenham.

Aurivillius, C., 1922. Lamiidae in Junk, W. & Schenkling, S., *Coleopterorum Catalogus,* **73**: 70-71; 139. Berlin.

— , 1923. *Ibid.,* **74**: 404-405.

Bílý, S. & Mehl, O., 1989. *Longhorn Beetles (Coleoptera: Cerambycidae) of Fenno-scandia and Denmark.* Leiden.

Chinery, M., 1986. *Insects of Britain and Western Europe.* London.

Curtis, J., 1827. *British Entomology,* **4**. London.

Demelt, C. von, 1966. *Die Tierwelt Deutschlands,* **52**: 2. Bockkäfer oder Cerambycidae. Jena.

Donisthorpe, H. St.J. K., 1939. *A preliminary list of the Coleoptera of Windsor Forest.* London.

Duffy, E.A.J., 1953. *A monograph of the immature stages of British and imported timber beetles (Cerambycidae).* London.

Fowler, W.W., 1890. *The Coleoptera of the British Islands.* **4**. London.

— , & Donisthorpe, H. St.J. K., 1913. *Ibid.,* **6** (Supplement). London.

Freude, H., Harde, K.W. and Lohse, G.A., 1966. *Die Käfer Mitteleuropas,* **9**. Krefeld.

Hansen, V., 1966. *Biller,* **22**. Traebukke Danmarks Fauna, Copenhagen. (Text in Danish.)

Harde, K.W., 1984. *A field guide in colour to Beetles.* English ed. Hammond, P.M. London.

Hickin, N., 1987. *Longhorn Beetles of the British Isles.* Princes Risborough.

Jackson, P.H., 1904. *Lamia textor* in North Wales, *Entomologist's mon. Mag.,* **40**: 211.

Janson, E.W., 1863. *British Beetles.* London.

Joy, N.H., 1976. *A practical handbook of British Beetles.* 2 vols. 2nd ed. Faringdon.

Kaufmann, R.R. Uhthoff-, 1946. The Longhorn Coleoptera of Wales, *Entomologist's Rec. J. Var.,* **58**: 105-108.

— , 1947. A contribution to the history of the Longicorn Coleoptera of Cheshire, *N. W. Nat.,* Mar.-June: 95-101.

— , 1948. Notes on the distribution of the British Longicorn Coleoptera, *Entomologist's mon. Mag.,* **84**: 66-85.

— , 1948. An annotated list of the Scottish Longicorn Coleoptera, *Proc. R. Phys. Soc. Edin.,* **23**(2): 83-94.

— , 1989. Browne *versus* Watson: Round Two. *Entomologist's Rec. J. Var.,* **101**: 61-63.

Klausnitzer, B. & Sander, F., 1981. *Die Bockkäfer Mitteleuropas.* Wittenberg Lutherstadt.

Kloet, G.S. & Hincks, W.D., 1977. Check list of British Insects, **11**(3), Strepsiptera and Coleoptera: 71. London.
Lesne, P., 1893. Moeurs du *Saperda scalaris* et du *Leiopus nebulosus*, *Ann. Soc. ent. Fr.*, **62**: 331.
Lyneborg, L., 1977. *Beetles in colour*. English ed. Vevers, G. Poole.
Marsham, T., 1802. *Entomologia Britannica*, **1**, Coleoptera. London.
Martyn, T., 1792. *The English Entomologist*, tab. 24, f.6; tab. 25, f. 13. London.
Murray, A., 1853. *Catalogue of the Coleoptera of Scotland*: 84. Edinburgh & London.
Paulian, R. & Villiers, A., 1941. Les larves des Cerambycidae français (Coleoptera), *Rev. fr. Ent.*, **8**(4): 202-217.
Planet, L.-M., 1924. *Histoire naturelle des Longicornes de France*. Paris.
Samouelle, G., 1819. *The Entomologist's useful Compendium*. London.
Sharp, D., 1880. *Insecta Scottica*: The Coleoptera of Scotland, *Scott. Nat.*, **5**: 371-378.
Shirt, D.B. (ed.), 1987. *British red data books*, **2**. Insects. Peterborough.
Skidmore, P. & Johnson, C., 1969. A preliminary list of the Coleoptera of Merioneth, North Wales, *Entomologist's Gaz.*, **20**: 139-225.
Speight, M.C.D., 1988. The Irish Cerambycid fauna (Coleoptera: Cerambycidae), *Bull. Ir. biogeog. Soc.*, 41-76.
Spry, W. & Shuckard, W.E., 1861. *The British Coleoptera delineated*. London.
Stephens, J.F., 1831. Illustrations of British Entomology, *Mandibulata*, **4**. London.
— , 1839. *A manual of British Coleoptera*. London.
Villiers, A., 1978. *Faune des Coléoptères de France*, **1**. Cerambycidae. Paris.
Walker, J.J., 1932. The Dale Collection of Coleoptera, *Entomologist's mon. Mag.*, **66**: 105.
Wilson, J. & Duncan, J., 1834. *Entomologia Edinensis*. Coleoptera. Edinburgh.

Butterflies in the Woolwich (S.E. London) district, 1990.

For several years now I have tended to feel, at the end of each season, that it has been even worse for butterflies in my district than the one preceding; with, doubtless, an occasional bright spot here and there to relieve the prevailing gloom (rendered still more profound by contrast with frequent glowing reports from other parts of the country). The present season has in some respects continued this downward trend; despite the long-lasting fine hot weather from spring to autumn, which one might have hoped would bring about an abundance of almost all the species that could have been expected in the old days. On the contrary, we have had here a surprisingly poor showing of *C. argiolus* (Holly Blue) — hardly more than sporadic throughout — and a total absence of all the autumn Vanessids hard to account for. The autumn brood of *P. aegeria* (Speckled Wood) failed to materialise, possibly a direct result of the drought — here long and severe. Nor was the promise of increase offered in 1989 by two sightings (one doubtful) of *L. megera* (Wall) realised in 1990, none being seen.

So much for the gloom — now for the bright spots. In strange contrast to *argiolus, P. icarus* (Common Blue), which has hardly lived up to its

popular epithet in recent years, had an excellent season in both broods on Woolwich Common, bravely resisting the combined onslaughts of drought and the local authority's mowing programme. I was agreeably surprised at this welcome revival after the very low numbers of late, due I suppose to the *Lotus* having staged a spectacular come-back on the common this year. The same and related plants were the principal focus for record numbers of *T. lineola* (Essex Skipper); previously erratic and highly localised in small populations, this year it was the most abundant butterfly on the common in its season, eclipsing even *M. jurtina* (Meadow Brown). For the first time here I was able to detect the presence of its very close ally, *T. sylvestris* (Small Skipper), in one particular spot, favouring the same flowers and flying with *lineola,* but in far smaller numbers. *O. venata* (Large Skipper) had a very fair season. *C. pamphilus* (Small Heath), plentiful at times on the common in years past, was fitful and uncertain in appearance; I have never seen it on other tracts of grassland in the area, such as Blackheath. *A. urticae* (Small Tortoiseshell) was not uncommon about a nettlebed, but nowhere else. In the same locality the first-ever *A. cardamines* (Orange-tip) was a most welcome and cheering sight. I have never understood why this attractive species should be absent hereabouts; now, hopefully, it may be attempting at last to establish itself, especially as it turned up elsewhere in the area.

This second spot was on the east (Welling) side of Shooters Hill, where on 17th May I noted two males at a place where I had thought it should occur because of the presence of a foodplant (*Alliaria*). One of them was being chased by a "white" (*Pieris* sp.). Though no more *cardamines* were seen, a later visit (21.vii) was not disappointing. In a small overgrown area where a path led through a rough thicket I counted eight species of butterfly, giving altogether, if one adds two more seen close by there at other times and certainly breeding there, ten species — a very respectable total for any one small spot in this district. I need mention only the most notable: *P.c-album* (Comma) occupied the very same perch on two separate visits, and was in good numbers along and near the nettle-fringed bank of a dried-up watercourse; *P. aegeria* was quite plentiful in the shadier parts about willow foliage on the 24th, and the first and only specimen of *P. tithonus* (Gatekeeper) I have yet seen in the district was spotted at rest rather low down, on the 21st. Search for more on the next visit was unsuccessful, but one wonders whether this species too is beginning to colonise the area. Incidentally it must be rather rare to see *tithonus* as a solitary specimen only; conversely, a species numerous at the spot, *P. napi* (Green-veined White), is far more often encountered by odd specimens — even though common generally.

Finally: I had to be content with but a single sighting of *L. phlaeas* (Small Copper) both this year (Charlton Park) and last (Blackheath).— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

BUTTERFLIES IN LANZAROTE — APRIL 1988 - APRIL 1989

G.G. Baldwin

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HAVING been invited for the second year running to share a holiday with some friends at their time-share in Lanzarote I was particularly looking forward to the opportunity to check on the butterfly sightings I had recorded in our 1988 visit. Both visits were made in the same two-week period — the last two weeks of April. In 1988, the early part of the year had seen quite a lot of rain on the island and our friends, with five or six years of visiting, were saying that they had never seen so much green vegetation and flowers. By the time of our visit, however, the weather was more typical — generally hot and sunny, but steady winds not uncommon in exposed areas.

In 1988, during the 14-day visit, I noted eight species of butterfly. The first day (15th April) after our arrival was, perhaps, the windiest of the visit. A solitary *Maniola jurtina* Linn. was noted around the geranium and other flowers of the time-share complex at Costa Teguise and during a short walk up the coast beyond the Beach Club a *Vanessa cardui* Linn. and an occasional *Colias croceus* Geoff. were being blown over the rather sparse vegetation and dwarf flowers amongst the lava rocks. They looked in good condition and, being on the east coast, I have since wondered whether they might have come across the 80 or so miles of sea separating the island from Morocco in Africa.

During the next fourteen days we visited various parts of the island. Most days the weather was warm and sunny and in driving about we were struck, mentally and physically, by the large numbers of *C. croceus* and *V. cardui.* Many were seen dead on the road or hit with a splat on the windscreen of our car. Stricken victims were no doubt soon disposed of by the large population of lizards and on one occasion a swallow swooped in front of me and nabbed a *C. croceus* just as I was noting it flying across the road.

Our friends, aware of my interest in butterflies, reported that they had earlier seen a "smallish white butterfly with greenish underside". This sounds like *Elphinstonia charlonia* Donzel — but I never saw any myself. The only white butterfly I saw was rapidly exploring flowering shrubs at a neighbouring complex. It did not settle for long at any time and I had neither the means nor the audacity to try and catch it under those conditions — but I am pretty sure it was *Pieris brassicae cheiranthi* Hbn.

As time went on the numbers of *C. croceus* and *V. cardui* seemed to increase day by day. By the 20th - 24th they were probably at a peak. Roadside verges usually with more luxuriant vegetation than farther in the fields seemed to be particular flying areas. For example, on 21st April on the road from Teguise to Yaiza we noted dozens or more of these two species.

Less common, but still quite numerous, was *Lycaena phlaeas* Linn. in similar territory. And, in perhaps more restricted areas, there were a number of *Polyommatus icarus* Rott. A dried stream bed with carpets of dwarf flowers at the lower reaches of the Guanapay volcano near Teguise in the centre of the island was alive with *V. cardui, P. icarus* and also the occasional *Vanessa virginiensis* Drury and *L. phlaeas.*

Undoubtedly, the largest numbers of *P. icarus* were seen at Mirador del Rio — a lofty outlook point at the top of the cliffs in the north-west corner of the island. A hot day there (20th April) brought out thousands (calculated on numbers in a few random metre-squares) — predominantly males but also many females. Curiously, I have no record of seeing any mating.

By 28th April however, whether because of a slight deterioration in the weather (it had definitely been more windy for a day or two), or perhaps because of an actual decline in population, the number of butterflies about had fallen dramatically. On a drive south-west from Teguise along the road we saw only an occasional *C. croceus* or *V. cardui* where ten days earlier they had been in their dozens.

Perhaps that was the limit of the butterfly season in Lanzarote and, certainly, my impression from this first visit was that April was a good month to be there. But perhaps my season had been exceptional — for D.F. Owen writing on a visit even earlier that year (*Ent. Rec.* **100**: 259-260) has concluded that "it is likely that [on Lanzarote] all butterflies are chiefly active in February and March".

All the more reason for my eager anticipation of the 1989 visit and the chance to check my sightings. I had heard that the 1989 season had also begun with more than usual early rains and I was confident that again there would be plenty of vegetation about and that butterfly numbers would be good.

The vegetation was there alright but there had been prolonged high winds and often relatively cool weather. A gully (barranco) no doubt normally quite dried up by this time of the year still had some pools of rather stagnant water (one with a good population of *Anopheles* larvae), but there were very few butterflies about and for the first week of our stay the only species seen in any numbers was *E. c. charlonia.*

According to Higgins and Riley (1969) *:E. c. charlonia* is normally found around 2000 feet but I was finding it at many locations even down to sea level. A fellow holiday maker to whom I had explained that the butterfly normally flew at 2000 feet asked if it was the high winds that were bringing them down. I agreed that it might be so. However, it was not until the subject came up again the next day that I realised that his understanding of flying at 2000 feet was a sort of butterfly "layer" 2000 feet up in the air!

All the same, although *E.c. charlonia* was quite widespread in small numbers it certainly was much more numerous at height. For example, 20th

April, at the top of a long extinct and eroded volcano (Bermeja, 157 metres) on the nearby island of Graciosa I noted it in dozens. The same day, I could record only a single *C. croceus* and a single *V. virginiensis*.

What a contrast between the years! If I had written this in 1988 I would have been quite sure that mid to end April was the best time to see butterflies in Lanzarote — good variety and large numbers in many locations. But in 1989 I would be saying that Lanzarote had a very localised butterfly population with little to be seen unless one knew the "right places to go".

What is the true situation? Is Feb/March the best time or is it late April or perhaps even later? Others of the Canary Islands have been reported on in the *Record* from time to time but we have had little information so far on Lanzarote.

The breeding site of *Anthicus bifasciatus* (Rossi) (Col.: Anthicidae) at Broadway, Worcestershire.

In 1990 (*Entomologist mon. Mag.* **126**: 27-32; *Col. Newsletter* **39**: 7-8) I referred to *Anthicus bifasciatus* (Rossi) in the Broadway area of Worcestershire, although in the former publication I was unable to provide evidence of breeding.

In the spring of 1990 a large quantity of cow dung and stable bedding was spread in a paddock at Broadway (SP04). In the following hot summer decomposition was negligible, the compacted bedding desiccated, and was only really damp at contact with the ground.

A substantial population of *A. bifasciatus* built up and teneral specimens were located in September 1990. Apart from what has just been outlined the following key considerations hallmark the beetle fauna:

(a) the presence of *Astenus pulchellus* (Heer) (not yet noted by the writer in compost)

(b) the dominance of *Mycetaea hirta* (Msh.)

(c) the absence of *Anthicus floralis* (L.) (frequently encountered in compost).— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcestershire WR10 3EP.

Observations on Coleoptera in the diet of two bird species in Worcestershire.

It is not easy to obtain exact information on the diet of Sand Martins by examination of faecal sacs of nestlings, because they are frequently dropped by parent birds into water beneath the nesting sites. On 5.9.1990 at Beckford, Worcestershire, I released two such sacs from spiders' webs at a nest opening. They contained, in addition to disarticulated fragments of flies and wasps (including chalcids), fragments of the following beetles:

Meligethes aeneus (F.) 3, *Calvia quattuordecimpunctata* (L.) 1, *Phyllotreta nigripes* (F.) 1, *Oulema melanopa* (L.) 7, *Sitona lineatus* (L.) 9, *Ceuthorynchidius troglodytes* (F.) 1, *Ceutorhynchus quadridens* (Pz.) 8. *C. quadridens* swarmed during late July 1990, and it is likely that the sacs were voided then. The conclusion is the same as that reached by Osborne & Whitehead (1988 *Entomologist's mon. Mag.* **124**: 232) with regard to House Martins, namely that the parent birds are entirely unselective samplers of the aerial fauna. In addition there is clear indication that, were the two species cohabiting, they would be direct competitors.

On 26.6.1990 I was able to examine the contents of a Little Owl pellet collected on Bredon Hill (SO94). This contained evidence of *Abax parallelepipedus* (P. & M.) 1, *Agonum muelleri* (Hbst.) 1, *Harpalus rufipes* (Deg,) 1, *H. affinis* (Schr.) 1, *Melanotus erythropus* (Gmelin) 1, *Agriotes acuminatus* (Ste.) 1, *A. obscurus* (L.) 1, *Stenocorus meridianus* (L.) 1, *Hypera punctata* (F.) 5. Few of the beetles listed here represent a good return on the energy expended in catching them, and the diet is probably that of an inexperienced juvenile bird. Cockchafers (*Melolontha melolontha* L.) are the principal element in the beetle-diet of nestling Little Owls in the area, and *Geotrupes* spp. are also provided. I have an interesting record of a number of adult *Procraerus tibialis* (Bois. & Lac.) (a localised elaterid) from debris at the base of a Little Owl's nest (SO94, 19.6.1990).— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcs WR10 3EP.

***Scolopostethus pictus* (Schilling) (Hem.: Lygaeidae) new to Worcestershire**

A specimen of this large, strongly-pigmented *Scolopostethus* was observed to land on my car whilst it was parked near the River Severn, Worcester (SO849547) at 15.30 hours BST on 12.x.1990. It was flying in extremely high light conditions in a temperature of 23°C.

S. pictus is generally rather rare inhabiting flood strands and cornstacks. Dr P. Kirby kindly provided information on the status and biotope of *S. pictus,* which may be locally distributed in the Lower Severn Valley.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcestershire WR10 3EP.

The Hummingbird Hawkmoth in West Cumbria.

At about 3.30pm on 28th August 1990, I observed one specimen of *Macroglossum stellatarum* fly into my garden here at Hensingham. The weather was sunny and dry with a temperature of around 70°F. The moth was very active and visited a number of herbaceous plants, and it was observed to feed in particular on the flowers of some cultivated *Campanulas.* The moth eventually left the garden after approximately six minutes.— R.W.J. READ, 43 Holly Terrace, Hensingham, Whitehaven, Cumbria CA28 8RF.

NEW SUBSPECIES OF *IOLAUS (EPAMERA) ALIENUS* TRIMEN (LEPIDOPTERA: LYCAENIDAE) FROM NAMIBIA

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Iolaus (Epamera) alienus sophiae subsp. nov. is described, and notes on its early stages, habits and distribution are given.

Iolaus (Epamera) alienus Trimen is widespread in Africa from Natal to southern Sudan and northern Nigeria. It has until now been divided into three subspecies. The nominate subspecies occurs in South Africa (Natal and Transvaal), Mozambique, Swaziland, Botswana, Zimbabwe, southern Tanzania, Malawi, and Zambia, with Umfuli River in Zimbabwe as its type locality.

I. (E.) alienus bicaudatus Aurivillius is found in northern Cameroun, northern Nigeria and Upper Volta.

I. (E.) alienus ugandae Stempffer occurs in Uganda, Kenya and southern Sudan.

In 1984, *I. (E.) alienus* was recorded and bred by Mr H.C. Ficq from localities in the Grootfontein area of Namibia constituting a population apparently geographically isolated and constantly different from others of the species. Extensive investigation of habitats to the north and east of this population failed to reveal any specimens nor any of the particular *Tapinanthus* sp. (Loranthaceae) with which this population is associated. This particular plant is different from that used by the nominate subspecies and has not been seen by Mr Ficq in any other locality. Specimens of the plant have been taken for study but it is at present unidentified. We therefore regard tthis population as a distinct subspecies and name it after Mrs Sophie Ficq, the wife of the discoverer.

Key to the subspecies of *I. (E.) alienus Trimen*

Male

1. Blue patch of fore wing upper side extending distad to middle of inner margin . . . . *sophiae*
– Blue patch of fore wing upper side extending distad to beyond post-discal area of inner margin . 2
2. Forewing upper side blue patch without white scales along distal border . . . . *alienus*
– Fore wing upper side blue patch with white scales along distal border 3
3. Hind wing upper side with sex patch reduced; under side markings all very reduced . . . . *bicaudatus*
1 Hind wing upper side with sex patch not reduced; under side markings not very reduced . . . . *ugandae*

Female

1. Fore wing upper side with blue and white patch extending distad along inner margin to middle . . . . *sophiae*
– Fore wing upper side with blue and white patch extending distad along inner margin to beyond postdiscal area 2
2. Blue patch of fore wing upper side with white area restricted to distal border . . . . *alienus*
– Blue patch fore wing upper side with white area extensive, covering most of the patch 3
3. Under side markings reduced . . . . *bicaudatus*
– Under side markings not reduced . . . . *ugandae*

Iolaus (Epamera) alienus sophiae **subsp. nov.** (Figs. 1-2, 5-6)

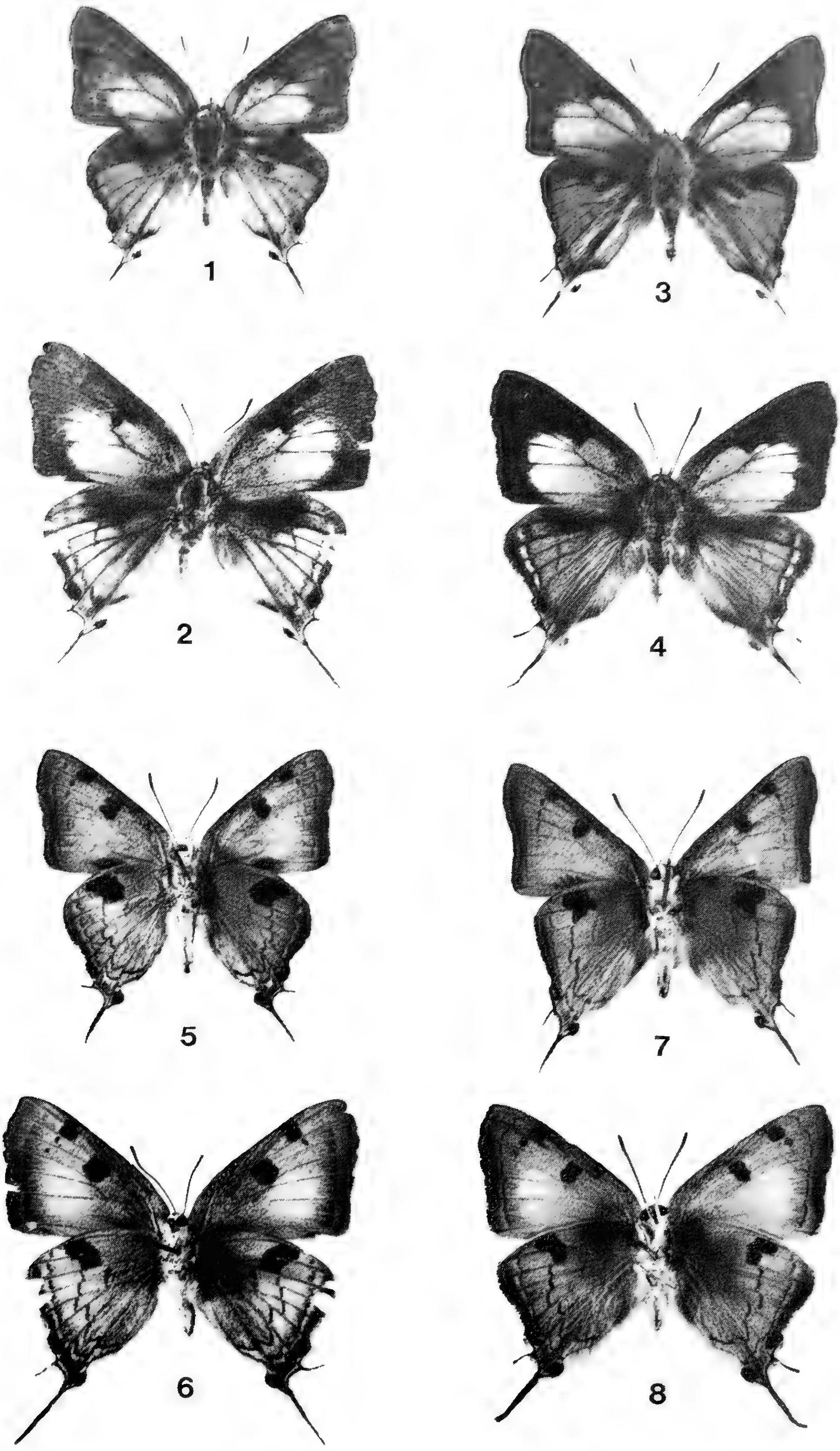
DESCRIPTION

Male. Both fore and hind wings more rounded than in nominate subspecies. Blue patch on fore wing upperside reduced, leaving a broader black outer marginal border (Fig. 1) which extends along inner margin as far as middle (only as far as the postdiscal area in the nominate subspecies (Fig. 3)). Blue area on hind wing upper side also reduced, starting below vein M1, (Fig. 1), not vein Rs as in nominate subspecies (Fig. 3).

Female. Similar to that of nominate subspecies except brownish black outer marginal border of fore wing upper side broader and extending as far as middle of inner margin, and on hind wing upper side anteriorly of M1 brownish-black as in male. Blue patches on both fore and hind wing upper sides white discally.

Male holotype. Fore wing length 18.1mm; antenna-wing ratio 0.50. *Wings, upper side.* Fore wing bright blue with a greenish tinge in a semicircle from inside of middle of costa through base of Cu2 and curving towards middle of inner margin; narrowly black along proximal half of costa but broadly black at apex and along outer margin; tuft of hairs at base of inner margin black; cilia grey. Hind wing bright blue from base to outer margin below M2; costal area above M2 black; outer margin narrowly black from apex to CuA1, followed by a black spot in cell CuA1; anal fold greyish-white; anal angular lobe with a black spot; tails black bordered with white; cilia greyish-white. *Wings, under side.* Fore wing ground colour pale greyish-white, palest over disc; a distinct black terminal discal patch; postdiscal area with a few discrete black spots from costa to M3; submarginal area

Figs. 1 - 8. *Iolaus (Epamera) alianus alienus* Trimen and *I. (E.) alienus sophiae* subsp. nov.
1 - 4. Upper side. 1. *I. (E.) alienus sophiae*, male holotype. 2. *I. (E.) alienus sophiae*, female paratype. 3. *I. (E.) alienus alienus*, male. 4. *I. (E.) alienus alienus*, female.
5 - 8. Under side. 5. *I (E.) alienus sophiae*, male of holotype. 6. *I. (E.) alienus sophiae*, female paratype. 7. *I. (E.) alienus alienus*, male. 8. *I. (E.) alienus alienus*, female. (Photographs by W.J. Morrison.)
NOTE: See text for wingspans.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with a row of short black lines from costa to CuA2; outer marginal area dark grey. Hind wing pale greyish-white; central dark grey terminal discal line; postdiscally with a large dark grey patch in Sc + Rs, from which runs a thin crenulate dark grey line to inner margin; submarginally with a thin grey line extending from costa to inner margin; outer margin with a grey band from apex to CuA1; CuA1 and anal lobe each with a black marginal spot ringed with pale greenish-blue. *Genitalia.* As in nominate subspecies.

Male paratypes. Fore wing lengths 14.3 - 18.8mm (mean 17.5mm, n = 11); antenna-wing ratios 0.48-0.50 (mean 0.49, n = 10).

Wings, upper side. Similar to holotype. *Wings, under side.* Dark patches much larger than in holotype.

Female paratypes. Forewing lengths 17.8 - 21.9mm (mean 19.8mm, n = 10); antenna-wing ratios 0.43 - 0.45 (mean 0.44 n = 10). *Wings, upper side.* Fore wing basally blue to white discally, narrowly brownish-black along costa but broadly brownish-black at apex and along outer margin. Hind wing brownish-black above M1, a narrow band extending down outer margin to CuA1; basal area pale blue becoming white discally with a short black line in M1 to M3 and a short black median discal mark; anal fold white to pale grey; CuA1 with a black spot bordered distally with ochre-yellow; anal lobe with black spot; cilia white; tails black bordered with white. *White, under side.* As in male but with markings usually better developed and hind wing with marginal black spot in CuA1 ringed proximally with ochre yellow.

Material examined. Male holotype: Namibia, 26 km N. of Grootfontein, 18.xii.1984, H.C. Ficq. Paratypes: 2 males 1 female same data as holotype; 1 male same data but 1.xii.1984; 2 males same data but 11.xii.1984; 3 males, 2 females same data but bred, emerged 1.i.1985 -4.1.1985; 17 males, 9 females same data but bred, emerged 23.ix.1985 -30.x.1985.

The holotype is deposited in the State Museum, Windhoek; paratypes are in the collections of H.C. Ficq (Florida, Transvaal), W.H., S.F. & G.A. Henning (Florida, Transvaal), Dr J.B. Ball (Cape Town), R.J. Mijburgh (Pretoria), the Transvaal Museum and the British Museum (Natural History).

Life history. Egg. White with numerous indentations laid singly on a leaf of the foodplant. Larva hatches after about seven days. 1.5mm in length creamy-white with long stiff setae. Feeds on the surface of the leaf and occupies the eaten groove, later instars feed on the edges of the leaves. At full grown measures 22mm in length resembling a bird dropping, but is highly variable in colour from bright green to purple with patches of dark ochre or brown and translucent white. Surface smooth, shiny with minute setae. Both honey-gland and tubercles present in second to fourth instars. *Pupa.* Length 13.5 - 15mm, colour, brownish-grey resembling a small broken twig or dead bud, hanging downwards from a twig attached only by

the cremastral hooks. Pupal stage 2 - 3 weeks up to 10 - 11 months. *Foodplant. Tapinanthus* sp. (Loranthaceae). Restricted to the Tsumeb area of Namibia.

Habits. An inhabitant of dry woodland where the dominant trees are *Combretum* and *Commiphora* species. The males ascend to the summits of hills in the early afternoon where they establish territories and chase off intruding males. They perch on prominent leaves or twigs at the top of some tall shrub, thence taking short fast jerky flights, often returning to the same perch. The females are usually found at the bottom of the hills where they search for suitable foodplant on which to oviposit.

Distribution. Only recorded from the Tsumeb/Grootfontein area of Namibia.

Acknowledgements

Our sincere thanks go to our father Mr W.H. Henning and to Mr H.C. Ficq.

References

Clark, C.G. & Dickson, C.G.C., 1971. *Life Histories of the South African Lycaenid Butterflies.* Purnell, Cape Town.

Stempfer, H. & Bennett, N., 1958. Revision des genres appartenant au groupe des *Iolaus* (Lep.: Lycaenidae). *Bulletin de l'Ifan XX:* 1244-1347.

The Small Eggar *Eriogaster lanestris* Linnaeus in Wiltshire in 1990.

Almost annually over the last ten years or so my brother at Steeple Ashton in Wiltshire has found very small numbers of *E. lanestris* in his light trap. In addition in this general area of Wiltshire I have found the larval nests, again almost annually and mostly only one or two. However, this has to be qualified by saying that I have never deliberately looked for nests but simply discovered them in the course of other field work. What has seemed extraordinary to me is that until 1990 in spite of working the same areas for other purposes I had not discovered a larval nest anywhere within at least a quarter of a mile of its predecessors so that I was in the situation that having found a larval nest the knowledge of its whereabouts was of no use in finding nests the following year.

The spring of 1990 was most congenial for the emergence of early species in this area and in due course I noted three larval nests of *E. lanestris* within about as many feet of hedgerow, no doubt the product of one female. Considering this is a red data species I was rather surprised that in the space of about a week and without actually searching, to have noticed over thirty nests in widely scattered localities in this general area of West Wilts. All of the nests were noted on hedgerows which had been trimmed in either of the

two previous autumns, in fact over the past decade I can think of only two nests that were on untrimmed hedgerows. The majority of the nests were on roadside hedgerows but in areas closer to home or work where I had access to non-roadside hedgerows and undertook my other fieldwork I noted other nests so that distribution was not necessarily limited to roadside habitat. In the course of my farm work during this spell, by a lucky chance, and not thinking about *E. lanestris* at that moment as lunch was imminent, I had a lift back home on the top of a trailer, and from this high vantage point I suddenly realised that I was able to look down on the top of a hedgerow that I knew had in a space of about 300 yards five larval nests on the sides of the hedge. From this viewpoint I added another five nests which were so placed in the top of the hedgerow that they were almost invisible from the normal position of someone searching at ground level — in fact, so much so that later in the day a search for those five nests resulted in only one nest that was fairly easily detectable, the remaining four needing a considerable search to locate them, and I knew exactly where to look! There might be a lesson to be learned here of *E. lanestris'* habits.

The distribution of larval nests seems to follow rather closely the distribution of Blackthorn (*Prunus spinosa*) which appears to be the preferred pabulum in this area. Hawthorn (*Crataegus monogyna*) is also occasionally used and Elm (*Ulmus procera*) was noted once about five years ago.

I came across nests more or less anywhere in the Trowbridge/Westbury area and the surrounding villages, provided the habitat as described above was available. By the end of the larval season for *E. lanestris* I had lost count of the actual total but I knew that it was well in excess of 50 nests and mostly without really searching. The tractor driver on a large farm in the same locality who my brother has "educated" on the finer points of *E. lanestris* larvae and their habits, for the purpose of avoiding the destruction of nests during his farm work has become rather adroit in locating nests. He reported several additional nests from areas which I did not visit so that it is very likely that there were considerably more nests about than indicated in this note. With such an obvious increase it was somewhat ironical that only one imagine — a male — was noted at my brother's light.— M.H. SMITH, 42 Bellefield Crescent, Trowbridge, Wiltshire.

Two noctuids probably new to Worcestershire.

The following two species of noctuids were taken at my m.v. light trap:
Hadena compta D. & S. (1). 28/29.vi.1988.
Lithophane leautieri hesperica Boursin (3), 12/13.x.1990.

The record of *H. compta* just predates that mentioned for Blackwell, Worcestershire in *Ent. Rec.* **101**: 84. It must be significant that this first local record of *L. l. hesperica* should involve three individuals.— H.S. HEMSLEY-HALL, Orchard Drive, Little Comberton, Pershore, Worcs.

THE MAGPIE MOTH (*ABRAXAS GROSSULARIATA* L.); A CHANGE OF STATUS?

B.K. WEST, B.Ed.

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IN 1874 Edward Newman wrote that this moth was all too common in all our gardens both in England and Ireland where its larval foodplants were gooseberry and blackcurrant, while in woods and hedges it was found on blackthorn, and this he believed was its natural pabulum. Some thirty years later C. Barrett (1901) described the moth as being plentiful everywhere in gardens and lanes, also common in and around woods, and abundant in fens throughout England, Wales and Ireland; in Scotland more restricted to gardens, usually abundant, but sometimes local. He also mentions that in some years the larvae in gardens reach plague proportions, devouring the leaves of every plant including apple, hollyhock and cabbage, and he adds that in city gardens and elsewhere *Euonymus japonicus* is a favourite foodplant.

I became acquainted with the species at Bexley, Kent, from 1922 until 1927; there it was extremely common, especially in gardens, the caterpillars being found on currant and gooseberry bushes, less commonly on plum, but often in prodigious numbers on *E. japonicus,* usually on bushes growing beside walls or fences, where their favourite pupation sites were beneath the overhanging boards of shiplap or underneath window sills. I have noticed that wherever *E. japonicus* is the larval foodplant, the larvae restrict themselves to certain bushes, sometimes for many years, yet never colonise others in the vicinity. Thus for many years while residing by Dartford Heath a *Euonymus* between the front bay windows of the house maintained a colony of *grossulariata,* yet a second bush beside the fence at the side of the property was never colonised. At Bexleyheath a couple of small bushes beside a shack used as a classroom had a flourishing colony for over a decade although a large clump of *Euonymus* on the side of the main building remained free throughout the period. On numerous occasions I have noticed freshly emerged females pairing within or close by the bush upon which they fed as larvae, and subsequently lay their eggs in the immediate vicinity, suggesting that females disperse with reluctance, and the absence of colonies on nearby bushes is due to this mode of behaviour rather than some differences in the aspect or character of other bushes. Although the Dartford Heath colony mentioned above became heavily parasitised in later years, I suspect that this has not been the main factor causing decline in the species generally. In *Ent. Rec.* **77**: 49 I noted the defoliation of flowering currant (*Ribes sanguineum*) in 1963 at Bexleyheath, but this was certainly by larvae which walked from their *Euonymus* home, not the result of moths laying eggs on the *Ribes,* for the caterpillars were frequently observed walking across the soil; this would seem to have been the case with the swarms of larvae mentioned by Barrett in view of the unusual nature and variety of the plants listed.

It was about 1980 that I became aware that *grossulariata* had seriously declined in numbers in this district; *Euonymus* bushes which had supported the larvae for many years were now quite free of them and in more recent years I have found the currant and gooseberry bushes of gardens and allotments here devoid of magpie larvae, although one continues to find them in the Kent countryside, in small numbers, on hedgerow blackthorn and less frequently on hawthorn, spindle (*Euonymus europeus*) and buckthorn (*Rhamnus catharticus*).

Perhaps a contributary reason for a decline of the *E. japonicus* feeding *grossulariata* has resulted from the several severe winters, commencing with 1946/7, when frost killed many bushes, and often these were replaced by more desirable shrubs. In towns of the South-east *E. japonicus* together with *Ligustrum ovalifolium,* and to a lesser extent holly were utilised widely as hedges alongside fences and walls, nevertheless *E. japonicus* hedges are still a feature of the older, central parts of towns in S.E. England. Regarding my observation concerning the favouring of these bushes growing beside fences and walls, it is interesting to note that Edward Newman (1874) had observed that they also particularly favoured currant and gooseberry bushes trained against a wall, a practice rarely employed today.

The subject of larval reaction to a change of diet has on several occasions been the subject of notes in this journal, and regarding *grossulariata* has produced conflicting evidence. Thus the transfer from *E. japonicus* to *Ribes sanguineum,* an unusual foodplant, noted above occurred naturally, and the latter was accepted; J. Heslop-Harrison (*Ent. Rec.* **69**: 48) moved larvae fed on gooseberry to sallow successfully, but larvae he collected from *Calluna* would not accept the closely related *Erica cinerea,* another normal foodplant in the Hebrides, while *Calluna* was refused by newly-hatched larvae from a gooseberry feeding colony.

Many species of lepidoptera pass through phases of relative scarcity, or extreme abundance, either locally or upon a wide scale; however this species' decline in N.W. Kent has some unusual features:

(a) It was a most abundant species in N.W. Kent and over much of England, Wales and Ireland.
(b) Its scarcity has affected the urban population to a far greater extent than the rural one in this region.
(c) Its present scarcity here has extended over at least a decade.
(d) It appears to have deserted *E. japonicus* as a larval foodplant, formerly often its main one in urban areas, while gooseberry and currant are also neglected in towns of this region.

Chalmers-Hunt (1981) gives a picture for Kent in general similar to that which I have portrayed for the north-west of the county before the most recent decline of the species, stressing that in towns *E. japonicus* is the main foodplant, and in the countryside blackthorn; other foodplants are

noted, although elm (*Ulmus procera*) upon which I have found the larvae at Gravesend and Higham is omitted. He suggests that the species was commoner in Kent in the last century, changing "generally abundant" as given in the V.C.H. (1908) to "frequent", this assessment being based upon records up to about 1980.

This is the age of check lists and dot maps and the remarkable dearth of "County Lepidoptera" unfortunately renders difficult or impossible comparison with other parts of Britain. However, some corroboration appears in L. & K. Evans (1973) in which it is stated that although the moth was widespread and frequent in N.E. Surrey after 1950, there is no record of abundance, while the only larval foodplants mentioned are blackthorn, plum and *Rhamnus catharticus* — i.e. no mention of *E. japonicus,* currant or gooseberry! B. Goater (1974) comments that Fassnidge's estimate for Hampshire "common everywhere" is an over-simplification, and that *grossulariata* is most common within a mile or two of the coast along hedgerows where the larvae feed on hawthorn or blackthorn, but in gardens, although the caterpillars are sometimes a nuisance on *E. japonica,* they are seldom, if ever, a nuisance on fruit bushes nowadays. In Essex according to J. Firmin et al. (1975) the species had similarly declined in numbers from the time of the V.C.H. (1903), when apparently it abounded among currant and gooseberry bushes, and around blackthorn; presumably it did not do so in the 1960s and 1970s. There appears to be evidence of decline in numbers in Ireland, for E. Baynes (1964) describes the moth as being very common and distributed all over Ireland, although no detail is presented, nor is there mention of larval foodplants. In numerous visits to Ireland nowhere have I found the insect really common. Searching and beating for larvae in the Burren of County Clare have revealed a few on hazel and hawthorn, but similar procedures along hedgerows in counties Tyrone, Fermanagh and Cavan at the appropriate time has yielded none, nor much else either. J. Bradley and E. Pelham-Clinton (1967) summarising a series of visits to the Burren state that they found *grossulariata* widely distributed, but not very common, larvae being found on *Corylus, Prunus* and *Rhamnus,* and with no records of imagines.

The position regarding this insect in Scotland can be gleaned only by reference to journals such as this; it is largely passed over in the textbooks from Edward Newman to Skinner; but it would appear that the species is very rare or absent from many areas, and the larval foodplant preferences appear somewhat unusual. Searching and beating currant and gooseberry bushes in the Highlands on my numerous visits have never yielded the larvae, nor have I noticed them on heather there. Skinner (1984) notes that in the Hebrides the larvae feed on this plant, but in fact they do so on the Mainland also according to Harper (*Ent. Rec.* **70**: 91), who also states that the moth is exceedingly local and in limited numbers in northern Scotland.

Palmer (*Ent. Rec.* **87**: 222) notes it as local and common on *Ribes* in Aberdeen, although it was described as being abundant in gardens there in the late nineteenth century. Harper and Langmaid (*Ent. Rec.* **87**: 139) found bog myrtle (*Myrica gale*), *Salix aurita, S. atrocineraea, Sedum roseum* and hazel were larval foodplants in the Hebrides. For Scotland I think it can be concluded that the distribution and life history of *grossulariata* are imperfectly known; Palmer's comment does point to a decline in one urban population compared with the last century which is in accordance with that in England.

The evidence points to a perhaps steady decline in this moth during the first half of this century in many parts of the British Isles, and especially in urban areas in the later years. However in N.W. Kent there appears to have been a further decline affecting the urban population during the past decade, accompanied by desertion of *Euonymus japonicus,* and perhaps to a considerable extent the soft fruit bushes of gardens and allotments. I suspect that this more recent phase in not confined to N.W. Kent. Are there still flourishing colonies of *grossulariata* on *E. japonicus* within the London area, and elsewhere in urban S.E. England? To what extent are the larvae still found on the soft fruit bushes in these regions?

References

Barrett, C., 1901. *Lepidoptera of the British Islands.*
Baynes, E., 1964. *A revised Catalogue of Irish Macrolepidoptera.*
Bradley, J. and Pelham-Clinton, E., 1967. *Entomologist's Gaz.* **18**: 142.
Chalmers-Hunt, C.M., 1981. *The Butterflies and Moths of Kent.* **3**.
Evans, L. and K., 1973. *A Survey of the Macro-Lepidoptera of Croydon and N.E. Surrey.*
Firmin, J. et al., 1975. *A Guide to the Butterflies and Larger Moths of Essex.*
Goater,B., 1974. *The Butterflies and Moths of Hampshire and the Isle of Wight.*
Newman, E., 1874. *The Natural History of British Moths.*
Skinner, B., 1984. *Moths of the British Isles.*
South, R., 1939. *The Moths of the British Isles.*

New records for British ants.

Myrmica specioides Bondroit, 1918, first recorded for Britain as the synonymous *M. puerilis* Staercke, 1942 (Collingwood, 1962) disappeared from its first recorded site in a gravel bank just north of Deal through sea erosion and human trampling. The species probably still occurs elsewhere along the Kent coast since the first specimen was actually taken at Herne Bay in 1958 by J.C. Felton and both Felton and I subsequently found it on a bank at Seasalter (Felton, 1963). It is a pleasure to record that this uncommon British species was found on Bawdsey Quay on 1.x.90 nesting in an east facing sandy bank backed by shrubs above the roadway v.c.25 Grid ref. TM3338. Except in North Europe, this is not a coastal species and

occurs widely in continental Europe in dry grass habitats and is the most xerothermophilous species of the better known *Myrmica* according to Seifert, 1988. This ant has a more lively aggressive behaviour than the similar *M. scabrinodis* Nyl., stings freely and in England at least is more brightly coloured.

Tapinoma ambiguum Emery, 1925 was not recognised as a good species because of the difficulty of separating the female castes from the similar *T. erraticum* Latr. Kutter, 1977, however, gave it specific status and more recently Seifert, 1984, showed clearly that morphological overlap in the female castes was minimal although often found in similar biotopes in Central Europe. *T. ambiguum* may be recognised by its smaller general size and the very shallow clypeal emargination in the worker and queen compared with *T. erraticum.* The male is easily recognised by the subgenital plate which has widely separated thin lateral lobes compared with the more closely approximated broad lobes of *T. erraticum.* In Britain *T. ambiguum* occurs in the New forest where I have examples from SY21 and SY23 and in Cranborne Chase on chalk. Emery, 1925, also knew *T. ambiguum* from England from examples sent from the New forest by both W.C. Crawley and H. Donisthorpe who were aware of the difference in male genitalia from *T. erraticum. Tapinoma* specimens I have seen from Devon, West Sussex, Surrey and Kent have all been *T. erraticum* which probably also occurs in the New forest but it will be interesting to verify this.

Formica sanguinea Latr. continues to flourish in the Eastern Highlands both in the Speyside forests of Abernethy and Glenmore and in Deeside where recent captures at Glentanar and Invercauld, NO39, NO49, extend its known occurrence westward from Banchory and Kincardine O'Neil NO69, NO59.

Lasius meridionalis Bondroit should replace *L. rabaudi* Bond. which has been shown by Seifert, 1988 and others to be a different species. *L. meridionalis* occurs very widely on the East Anglian heaths and other locations, under the name of *L. rabaudi,* are given by Barrett, 1977 in the Provisional Atlas, *Lasius alienus* Foerst. was found in the undercliff below Haverigg near Millom, v.c.70 SD3137 well to the north of other known locations in England. Another new location is Wilsford South Lincs TL0243 at the same site where both *Formica cunicularia* Latr, and *Myrmica schencki* Em, are still to be found.— C. COLLINGWOOD, City Museum, Leeds LS1 3AA.

References

Barrett, K.E.J., 1979. Hymenoptera Formicidae Ants, *Provisional Atlas of the Insects of the British Isles* **5**.

Collingwood, C.A., 1962. *Myrmica puerilis* Staercke, 1942, an ant new to Britain. *Entomoloigst's mon. Mag.* **98**: 18-20.

Emery, C., 1925. Revision des especes palearctiques du genre *Tapinoma. Rev. Suisse de Zool.* **32** (2) 45-64.

Felton, J.C., 1967. A Preliminary Account of the Ants of Kent, *Trans. Kent. Field Club* **3** (2) 95-121.

Kutter, H., 1977, Insecta Helvetia 6 Hymenoptera Formicidae. *Schweiz. Ent. Ges.* **6**: 1-298.

Seifert, B., 1984. A Method for the Differentation of the Female Castes of *Tapinoma ambiguum* Emery and *T. erraticum* Latr. *Faunistiche Abhandl.* Dresden 11 (11) 151-155.

— , 1988. A Taxonomic Revision of the *Myrmica Species of Europe, Asia Minor and Caucasus (Hymenoptera, Formicidae) Abh. Ber. Naturk. Gorlitz.*

— , 1989. Revision of the European Species of the Ant Subgenus *Chthonolasius. Entomol. Abh. Mus. Tierkd.* Dresden **51** (8) 145-180.

Hazards of butterfly collecting — Nigeria 1989

I shall never forget 11.vi.1967. I was seated on a dilapidated VeloSolex moped kindly loaned to me by a member of the Danish Volunteer Service who was on home leave. I was chugging along the Agege Motor Road, an hour's drive from my parents' house in Lagos. It was imperative to find a good butterfly place within striking distance of town. I did not have a driving license at the time, and in any case my father was deeply possessive of the car.

Four miles north of Agege, after a giant church, a promising road led into the secondary forest, mainly consisting of cola-nut and cocoa plantations, with open spaces of newly cleared ground of nearly virgin forest, too — *ju-ju* — sacred to the ancestors. And there were lots, and lots, and lots of butterflies.

During the next three months I visited and revisited the locality. There were always new things to be found. Two colleagues in Lagos, Michael Cornes and John Riley, began accompanying me from time to time. We discovered that the small river running through the place probably provided a band of riverine forest with contact to the Ilaro Forest Reserve much further north, the closest intact rainforest to Lagos.

I went back to Lagos for another three months in 1969. The 4 m. NW of Agege locaiity was still splendid. In the intervening years Cornes and Riley had revisited the site and kept meticulous records. During my three months in Nigeria in1969, hundreds of net-days were consecrated on the locality. Every visit turned up new things. All were recorded in the card index that my two friends maintained. And they continued to visit. I paid brief visits to Nigeria in 1970, 1971 and 1972. On each I managed yet a visit to Agege — one or two new species were always found.

In1978, after much additional work by Cornes and Riley, we sat down and consolidated all the rercords for publication (1980. *J. Res. Lepid.*, **18**(1): 4-23), including two more gained by me on a brief sentimental visit to the locality. To our surprise the total came to 376 species, one of the largest numbers recorded in a limited locality anywhere outside of the Amazon area, and nearly half of all species ever recorded in Nigeria west of the Niger River.

In 1981 I spent a couple of hours at Agege. It was more or less unchanged, but there were ominous signs. Survey teams were mapping the area. Still, I managed to see more than 100 species and to get yet another species new to the locality, as well as a statistically significant set of observations on the delightful Lycaenid, *Oxylides faunas*. This is a small butterfly whose underside hindwings carry a wonderful false head, intended to make predators attack the wrong end of the butterfly. This particular one has the added twist of turning 180 degrees in the air a fraction of a second before landing, thus adding to the deception.

It was only in March 1989 that I was able to revisit the locality. Alas, it was no more. Jerry built housing was everywhere. Only along the small river were trees still to be found, though a surprising number of butterflies were clinging on by the skin of their probosces. I found the little pool on whose banks my brother and I had once been engaged in serious conversation suggesting that we should get ourselves a Nigerian wife — big lads like us still unmarried, with no children! ! ! Here I had tied a net with vines to a four metre stick, trying to capture a rare species of *Epitola* from a tall palm, in front of a rapt audience of market women bringing *kola* nuts to Agege. Their cheers, when the contraption crashed to earth with the precious booty inside, still rang in my ears (as described in a previous instalment these same women had seen me ignominiously strip in pubic to rid myself of hordes of driver ants (*Ent. Rec.* **92**: 865-87)).

But there is not much point in being sentimental. Lagos has grown from a small hamlet of a few thousasnd people to a conurbation of more that 15 million in less than a century. It has tripled since I paid my first visit in 1967. Well, Agege is gone. Sentimentality aside, I can live with that. After all, Agege was on the fringes of one of the most vibrant megapolises in the world. I do have problems living with the fact that in a few years there will be no "Ageges" left, unless conservation efforts manage to harness a level of political will and administrative skill that is not evident today.— TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

A pale ochreous form of *Herminia tarsipennalis* Treischke, the Fan-foot (Lep.: Noctuidae), in Dumfries.

From 1985 to 1988 several specimens of *H. tarsipennalis* were caught in the Rothamsted Insect Survey light trap at Mabie, Dumfries (Site No. 454, OS grid ref. NX951 707). These records in themselves are important as the distribution of this species in northern England and Scotland is poorly known. However, the morphology of the individuals caught at Mabie makes the captures even more noteworthy. Rather than the usual leaden colour of typical English specimens, the Mabie individuals are sandy ochreous brown, reminiscent of a pale *Paracolax derivalis* Hübner. No specimens of the type have so far been caught in the trap. Although not mentioned by Skinner (1984), Heath and Emmet (1983) state that a

"yellow" form is found in Ireland. In the national collection there is a single yellowish Irish specimen to which those from Mabie approximately conform. Further investigation into Dumfries populations of *H. tarsipennalis* are required to ascertain the status and distribution of this form.

Thanks are extended to D. Watterson for operating the trap at Mabie, B. Skinner for his advice and to D. Carter of the British Museum (Natural History) for allowing access to the national Lepidoptera collection.

References

Heath, J. and Emmett, A.M. (1983). The moths and butterflies of Great Britain and Ireland, Vol. 10. Harley, Colchester.

Skinner, B. (1984). Colour Identification guide to moths of the British Isles. Viking, Harmondsworth.

A.M. Riley, Dept. Entomology and Nematology, AFRC Institute of Arable Crops Research, Rothamstead Experimental Station, Harpenden, Hertfordshire AL5 2JQ.

***Apion simile* Kirby, W. (Col.: Apionidae) in Cumbria.**

On 27th August 1989 I collected three specimens of this distinctive weevil while on a day visit to the Kingmoor Nature Reserve near Carlisle (NGR NY38.58). The beetles, two males and one female were swept from low herbage beneath some Silver Birch trees at the entrance to the reserve.

According to M.G. Morris (1990, Orthocerous Weevils, *Handbk. Ident. Br. Insects,* **5**(16): 51), *A. simile* is a local weevil in Britain, but widely distributed and known from England, Wales and Scotland. This species has not been previously recorded from Cumbria, and Michael Morris (pers. comm.) informs me that this is a new county record and the first for VC70, Cumberland.

I wish to thank Dr Morris and Paul Hyman for very kindly providing me with information regarding the present distribution of *A. simile* in Britain.— R.W.J. Read, Holly Terrace, Hensingham, Whitehaven, Cumbria CA28 8RF.

***Peridea anceps* Goeze, the Great Prominent, f. *fusca* Cockayne (Lep.: Notodontidae) in Stirlingshire.**

A single female of the melanic f. *fusca* of *P. anceps* was caught in the Rothamsted Insect Survey light trap at Rowardennan, Stirlingshire (Site No. 97, OS grid ref. NS378 958) on 25.v.1990. The specimen is entirely black, almost devoid of markings. Skinner, B. (*Colour Identification Guide to Moths of the British Isles.* Viking, Harmondsworth, 1984) states that this form occurs in the Lake District and a similar form has been reported occasionally from Surrey. The present record is particularly interesting as it appears to have come from the northernmost known locality for *P. anceps* in Britain (Heath, J. & Emmett, A.M. (1983) *Moths and Butterflies of Great Britain and Ireland,* **9**. Harley, Colchester).

Although this species is caught regularly in the Insect Survey trap at Rowardennan, f. *fusca* has not previously been recorded.

Thanks are extended to R. McMath for operating the trap at Rowardennan.— ADRIAN M. RILEY, Dept. of Entomology and Nematology, AFRC Institute of Arable Crops Research, Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ.

Hentomological spelling.

I was interested in J.L. Campbell's comment in his book review in the *Entomologist's Record* (1990, **102**: 308) where he points out that the Inner Hebridean island of Rum is not traditionally spelt with an "h". The British seem to have an obsession for adding "h"s to local names. The apomictic whitebeam *Sorbus devoniensis* is known as "French Ales" by Devon people, the second word deriving from Norman French "alies" meaning "service berries". Non-Devon authors habitually convert the name to "French Hales".

So far as Rum is concerned, can anyone explain why the name of the local race of the Small Heath is spelt as it is: *Coenonympha pamphilus rhoumensis*? Here an "o", as well as an "h" has been added. Did the Romans, or medieval Latinists, call the island "Rhoum" (or "Roum")? It cannot be that Latin demands an "o" before a "u" as English does a "u" after "q", otherwise the scientific name of the Spanish Festoon butterfly would not be spelt as it is — *Zerynthia rumina*. Perhaps the "o" in *rhoumensis* is another misguided attempt to make a short word as long as possible. Or is it simply a mistake like the generic name of St Dabeoc's Heath which must now be permanently spelt *"Daboecia"* because of international taxonomic rules? St Dabeoc was an Irish saint: do the Gaelic languages attract these orthographic adjustments?—PATRICK ROPER, South View, Sedlescombe, Battle, East Sussex TN33 0PE.

***Hypoponera punctatissima* (Roger) (Hymenoptera: Formicidae) outdoors in a rural Northamptonshire garden.**

On 25th August 1990, shortly after coming in from the garden of my house at Hemington, near Oundle, Northants (TL091852), I removed a winged queen *Hypoponera punctatissima* from my beard. Only two species of ant in the subfamily Ponerinae are known to occur in Britain, *Ponera coarctata* (Latr.) is a southern species recorded no further north than Hertfordshire, but Barrett (1979, *Provisional Atlas of the Insects of the British Isles,* pt.5, Biological Records Centre, Huntingdon) did not map what he regarded as "the doubtfully endemic *H. punctatissima*". However, Bolton & Collingwood (1953, *Handbk, Indent. Brit. Ins.* **6**, pt. 3c, Royal Entomological Society of London) decided to "recognise it as an endemic as it has been found on occasion away from human habitations". Records deposited in the Biological Records Centre at Monks Woods Experimental

Station show the species to be widely distributed from Kent to Edinburgh, and it has also been recorded from Dublin docks.

H. punctatissima occurs throughout the tropics and sub-tropical regions and is regarded as a "tramp" species, extending its range by being carried in ships, etc. Nearly all British records are from heated premises, usually in the larger urban areas. The few colonies found outdoors are mostly associated with decaying organic matter producing heat by fermentation, such as rubbish pits, bone heaps, and a coffee waste tip. Rural captures appear to be rare and include two specimens in flood refuse at Whitstable, Kent (1906); single queens swept in a wood near Bromley, Kent (1886), and half a mile from Penarth, Glamorgan (1914); and a record from Minchinhampton, Gloucestershire (1895). Dr Andrew Bourke (*in litt.*) during a recent study observed that colonies were unobtrusive until the emergence of winged queens which then often fly to light and gather at windows.

The possibility of the Hemington specimen of *H. punctatissima* originating from within the house is remote as I have kept detailed records of any Coleoptera, and unusual insects of other Orders, in the garden and house since it was built in 1973. Dr Bourke states that there are no data on the distance that a queen can fly but considers the compost heap in my garden as the most likely origin for this ant. However, sieving the fermenting layers failed to reveal any more specimens. The immediate environs of my house comprise a single row of some ten properties surrounded by intensively farmed arable land. The village is 6 km SE of the small market town of Oundle, and 18 km SW of the City of Peterborough.— R. COLIN WELCH, Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs PE17 2LS.

Recent range-extensions of some Auchenorrhyncha

Those of the following recent records of Auchenorrhyncha marked (*) are new vice-county records according to maps in the *Auchenorrhyncha Recording Scheme* Newsletter 5, 1985.

CERCOPIDAE

Cercopis vulnerata Illiger. Drowned at sea, off Hoylake, Cheshire SJ159889, 28th May, 1985. Probably only modern Cheshire record.

CICADELLIDAE

Ledra aurita (Linnaeus). Breeding on oak (*) Tewkesbury, Gloucestershire. SP03, 1986-1990. Breeding on oak (rare) Stanway, Gloucestershire, SP03, 24th July 1990. Adult on *Acer ginnala* Maximowicz (*), Little Comberton, Worcestershire SO94, 29th September 1986. Breeding on *Acer campestre* L., Pershore, Worcestershire, SO94, 22nd July 1990.

Pediopsis tiliae (Germar). Under *Tilia* x *europaea* L. (*) Broadway, Worcestershire, SO03, 10th September 1987. On *Tilia platyphyllos* Scop.

Elmley Castle, Worcestershire, SO94, 7th July 1990. Fewer than ten post-1969 U.K. records.

Aphrodes flavostriatus (Donovan). Dry bank amongst *Aubrietia* (*), Broadway, Worcestershire, SP03, 26th July 1988.

Macrosteles frontalis (Scott). Breeding on *Equisetum arvense* L. Aston Mill, Worcestershire, SO93, 1986 - 1988. Adult with larval sac of dryinid attached, 26th June 1988 (vide Askew, R.R. *Parasitic Insects,* Heinneman, 1971).

CIXIIDAE

Oliarus leporinus (Linnaeus). Breeding at roots Scurvy-grass *Cochlearia officinalis* Linnaeus, upper saltmarsh, Sand Bay, Somerset, ST36, 27th May 1987. Few sites on Bristol Channel coast.

I thank Dr A.J. Stewart for naming *P. tiliae* and *M. frontalis.*— P.F. Whitehead, Moor Leys, Little Comberton, Pershore, Worcestershire WR10 3EP.

***Phyllonorycter leucographella* (Zeller) (Lep.: Gracillariidae) in Derbyshire.**

On 11th November 1990 I attended the Derbyshire Entomological Society's annual exhibition at Elvaston Castle Country Park, near Derby (VC57). During the course of the afternoon I took a walk in the grounds and was attracted to a large *Pyracantha* bush growing against a garden wall. Almost immediately I found a single mine of *P. leucographella.* However, a brief search of the same and nearby bushes failed to reveal any others.

Following the discovery of this species in Britain in 1989 (Emmet, A.M., 1989, *Ent. Rec.* **101**: 189-194) records have been confined to Essex and adjacent counties. The mined leaf was sent to the Rev David Agassiz who kindly confirmed that this is the first occurrence outside that area.— H.E. Beaumont, 7 Brampton Road, West Melton, Rotherham, South Yorks S63 6AN.

Another unusual pupation site for *Cerula vinula* Linneaus (Lep.: Notodontidae).

Adrian Riley's report (*Ent. Rec.* **102**: 296) of an unusual pupation site of *Cerula vinula* reminded me of an even more unusual site used by this species that I came across early in 1990. On 11.iii.1990 in the old roadside quarry near Craigburn (OS grid ref. NT2354), Peebleshire I found what appeared to be a cocoon of *C. vinula* some 15cm up an old flower stalk (9mm diameter) of *Senecio jacobaea.* The clump of Ragwort was situated on top of a small hillock some 25 metres distance from the nearest *Salix* bush. With the winter die-back of vegetation the cocoon was clearly visible from a considerable distance. In due course an imago of *C. vinula* emerged on 3.v.1990. In view of the aberrant pupation site I had at least expected the larva to have been parasitised.—K.P. Bland, 35 Charterhall Road, Edinburgh EH9 3HS.

Pabulum of *Ancylis tineana* (Hübner) (Lep.: Tortricidae) confirmed as Birch in Britain.

Ancylis tineana (Hübner) feeds on a wide range of trees and bushes in Europe (Emmet, A.M. (1988) *A Field Guide to the Smaller British Lepidoptera*). However, due to the moth's scarcity in the British Isles it has never been reared here and hence its foodplant established. This has now been rectified. Larval spinnings found on small grazed *Betula pubescens* seedlings, less than one foot high, growing in an open grassy area on Schiehallion (OS grid ref NN7157), Perthshire (VC88) produced this species. The spinnings were collected on 10.ix.1989 and consisted of chambers made from several leaves. A single larva was seen wandering around the plantpot in early spring after overwintering successfully. It spun a white silken cocoon in a folded dead Birch leaf and emerged on 4.vi.1990. Unfortunately a number of spinnings were collected and the precise one which contained the successful larva is not known so it would be premature to assign it to one particular type of spinning, as empty spinnings of other species, such as *Hedya atropunctana* (Zett.), may have been included in the collection.— K.P. BLAND, 35 Charterhall Road, Edinburgh EH9 3HS.

***Utethesia pulchella* L., the Crimson-speckled Footman (Lep.: Arctiidae) near Exeter.**

My friend and colleague, V.W. Philpott, has asked me to report his capture of a single male of *Utethesia pulchella* L. at m.v. light on 30.ix.1990 at Woodbury, Devon (OS grid ref. SY018 876). The specimen was caught at 03.05 hours during a spell of very warm southerly winds (the temperature at 03.00 hours was 60°F.). B. Skinner (pers. comm.) tells me that this species has not been recorded in Britain since 1982. Several other migrant species were observed on the night, including *Agrotis ipsilon* Hufn. (20), *Spodoptera exigua* Hb. (3) and large numbers of *Autographa gamma* L. Mr Philpott notes that both richly tinted and unicolourous forms of the latter (presumably "home-bred" and immigrant individuals) were present.— ADRIAN M. RILEY, Longmynd, 35 Park Mount, Harpenden, Herts AL5 3AS.

***Alevonota aurantiaca* Fauv. (Col.: Staphylinidae) recaptured at Mickleham, Surrey; with short notes on two of its congeners.**

On 25th April 1990, whilst collecting with my friend Prof. J.A. Owen on the wooded slopes between Headley Lane and Mickleham Downs, I swept a pallid-looking little Staphylinid which I dismissed at the time as a probable teneral example of some common Aleocharine. That evening it proved that I had taken the above very rare insect — an interesting repetition of G.C. Champion's capture of the first known British specimen in the same locality 122 years earlier (8.v.1868, cf. Fowler, 1888, *Col. Brit. Isl.* **2**: 92). The species was then called *Homalota rufotestacea* Kr., which trivial name

is now applied to another *Alevonota*; indeed all four of our species have undergone changes of name, a fact that must be borne in mind in considering the old records.

When recording *A. aurantiaca* from Box Hill (two under a stone, iv.37) as the first find since Champion's — the site was only some hundreds of yards from that of my recent capture (1937, *Ent. Rec.* **49**: 136-7), I was unaware that the latter collector had also taken it at Guildford in the same county — several on one occasion by evening sweeping (*Ent. mon. Mag.*, ref. not to hand). It was taken also by Harwood, in the 1930s, in moss and by evening sweeping at Hambledon Hill, Blandford (Dorset), once in numbers (unpublished). The only other captures known to me are of one by the late J.L. Henderson in his garden at Purley, Surrey (1945, *Ent. mon. Mag.* **81**: 63, 65), and another by Mr D. Appleton at Portsdown, S. Hants (27.iii.73). *A. aurantiaca* appears to be exclusively confined to the chalk in Britain.

Another species of this scarce subterranean genus, *A. gracilenta* Er. (=*splendens* Kr.), is less seldom encountered than the last, but, unlike it, seems to occur almost invariably by single specimens. Since finding one at Windsor in 1939 (1940, *Ent. mon. Mag.* **76**: 32), I met with it on four occasions between 1958 and 1965 in my former garden at Blackheath by sweeping a lawn in warm afternoon sunshine; and lastly, one at Swanscombe, N.W. Kent, swept in a chalkpit, 29.v.69 — apparently a fairly typical habitat. I have seen one taken by Mr N. Holford on his garden lawn at Portsmouth, 25.ix.62. It will be seen from the above that *A. gracilenta* appears to have temporarily become a little less rare round about the 1960s, but I have heard of no further capture since my 1969 one. It was unrepresented in the Harwood collection; Donisthorpe's specimen was swept on the downs at Findon near Worthing (? unpublished).

A. rufotestacea Kr. (=*elegantula* Bris., *atricapilla* auct.), the least rare of our species but still extremely uncommon, I have taken only twice, in West Kent: one in the Thames Estuary area (as already recorded), and two in Darenth Wood (swept 6.v.60). The later capture adds one more to the very long list of rarities from that classic locality. Judging by those given in Fowler (*l.c. supra*) this should be rather especially a Surrey insect, but in later times has occurred more often in the New Forest (e.g. to P. Harwood and D. Appleton).— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Examples of late and partial second and third broods of moths in the autumn of 1990 in the Isle of Wight.

1990 was the warmest year since the middle of the seventeenth century and had a prolonged hot summer and warm autumn similar to that of 1989. February and March also experienced above average temperatures and there was a considerable migration of butterflies and moths along the south coast in March. June was the only month which fell out of line being cool

and cloudy but with below average rainfall.

As in 1989 there were a considerable number of second and third broods in the late summer and autumn some of which deserve special mention.

For the second year running there was a partial second brood of *Agrotis trux lunigera* Steph. when one was taken at Niton on 18th September. Evidence of this brood is not mentioned in any of the classic entomological literature. The late records of *Cucullia umbratica* Linn. (23rd August) and *Cryphia domestica* Hufn. could possibly be late emergents but since the season was so forward it is more likely that these were examples of a partial second brood. A very darkly marked specimen of *Scopula marginepunctata* Goeze was taken on 18th October and this would seem to be evidence of a third brood.

Amongst the Pyralid moths the unusual broods of the following species are not mentioned in Goater (*British Pyralid moths*) and are therefore worthy of mention. Second brood examples of *Hypsopygia costalis* Fabr. (3rd October); *Eurrhypara hortulata* Linn. (5th October) and *Pleuroptya ruralis* Scop. (18th October) and third brood examples of *Pyrausta ostrinalis* Hübn. (12th September) and *Pyrausta cespitalis* D. & S. (19th September) are all exceptional dates.

Below are given, in chronological order, a list of the latest date for individual species in the Isle of Wight from late August to mid-November. In parentheses after each species is the locality (C = Chale Green; F = Freshwater; N = Niton; Q = Queen's Bower) and presumptive brood (2 = second; 3 = third):

August 23rd *Colostygia pectinataria* Knoch. (C,2); *Dypterygia scabriuscula* L. (C,2); *Cucullia umbratica* L. (C,2). 27th *Laothoe populi* L. (F,2).

September 1st *Epirrohe alternata* Mull. (C,2); *Abrostola triplasia* L. (C,2). 2nd *A. trigemina* Wern. (F,2). 3rd *Cabera exanthemata* Scop. (C,3). 6th *Gymnoscelis rufifasciata* Haw. (C,3). 7th *Axylia putris* L. (C,2). 8th *Spilosoma luteum* Hufn. (F,2). 10th *Cryphia domestica* Hufn. (F,2). 12th *Diachrysia chrysitis* L. (C,2); *Pyrausta ostrinalis* Hbn. (F,3). 16th *Camptogramma bilineata* L. (F,2). 18th *Agrotis trux lunigera* Steph. (N,2). 19th *Pyrausta cespitalis* D. & S. (F,3). 22nd *Idaea aversata* L. (F,2). 26th *Agrotis exclamationis* L. (C,2); *Hadena bicruris* Hufn. (C,2). 30th *Lacanobia oleracea* L. (F,2).

October 3rd *Hypsopygia costalis* Fab. (F,2). 5th *Eurrhypara hortulata* L. (C,2). 9th *Xanthorhoe fluctuata* L. (Q,3). 15th *Peribatodes rhomboidaria* D. & S. (F,2). 18th *Scopula marginepunctata* Goeze (F,3); *Pleuroptya ruralis* Scop. (F,2). 19th *Ourapteryx sambucaria* L. (F,2). 20th *Hypena proboscidalis* L. (F,2).

November 10th *Xestia c-nigrum* L. (F,2). 12th *Hoplodrina ambigua* D. & S. (F,C,3). 13th *Agrotis puta* Hbn. (F,3).

My thanks to S. Colenutt, P.J. Cramp and N. Holland for their invaluable records.—S.A. Knill-Jones, 2 School Road, Freshwater, Isle of Wight.

Leopoldius signatus (Wiederman) (Diptera: Conopidae) in outer London.

Nationally, *Leopoldius signatus* is very scarce; however, in the south London suburb of Merton, I have frequently encountered this species at ivy blossom. Mr first experience of this insect was in Morden Hall Park (TQ2668), on 30th October 1984, where some very fine ivy covered trees and walls were ideal for a variety of autumnal species. I subsequently saw this species on a number of further occasions, sometimes more than single individuals. The following year (1985), *L. signatus* was also found at Bennetts Hole (TQ265 675), a site on the River Wandle about a mile from Morden Hall Park.

This year, I made a specific effort to find *L. signatus* on Mitcham Common (TQ28306805) and met with success on my second attempt. So far, I have only taken a single individual which was sitting on a shady patch of ivy away from the main patch that I was observing. During the same visit, I also found two *Didea fasciata,* another nationally scarce species which is well established on this site. Indeed, my last record for this species on Mitcham Common is 10th October (1990), a single individual sunning itself on an oak leaf.

L. signatus is thought to parasitise vespids (Smith 1969); however, during all of my observations of *L. signatus,* I have never witnessed an attempt to parasitise a host. Vespids are usually abundant at the sites I have found and those that I have examined have all proved so far to be *Vespula vulgaris* which seems to be the prime candidate as host. [Reference: Smith, K.G.V. 1969 *Diptera: Conopidae. Handbk. Ident. Br. Insects* **10** (3a). Royal Entomological Society of London.]—R.K. MORRIS, 241 Commonside East, Mitcham, Surrey CR4 1HB.

Rothamsted farmland light trap network: interesting Lepidoptera records for July, 1990.

Continuing our monthly reports of unusual Lepidoptera records from the network of light traps operating on the Rothamsted Estate, the following are particularly noteworthy for July.

Idaea vulpinaria H.-S. was first recorded on the estate in June, 1990 (*antea*: 22). During July a further eight individuals were caught, each at a different site. This suggests that *I. vulpinaria* is widespread and well established in the area. *Phlyctaenia perlucidalis* Hb. was also discussed in the report for June (*loc. cit.*) and a further specimen was caught in an estate network trap on 16th July. Singletons were also recorded in the national network traps at Empingham, Leicestershire (Site No. 497; OS grid ref. SK953 087) on the 17th and Terrington St Clements, Norfolk (Site No. 381, OS grid ref. TF547 186) on 12th July.

Idaea straminata Borkh. (one on 18th July), *Hyloicus pinastri* L. (one at m.v. on 15th/16th) and *Eilema deplana* Esp. (one on 29th) were all recorded on the estate for the first time.

The flight periods of *Hydraecia micacea* Esp. and *Ennomos quercinaria* Hufn. appear to be significantly advanced. The former was first caught on the 15th (two to three weeks earlier than expected) and the latter was regularly recorded from mid-July (about a month early).

Three individuals of *Calamotropha paludella* Hb. were caught at separate sites on 15th July. This species is only infrequently recorded outside East Anglia, Kent, Hants, Isle of Wight and Dorset (Goater, B. (1986) *British Pyralid Moths*. Harley, Colchester). The Rothamsted captures probably represent a local migration of *C. paludella* as there is no apparently suitable habitat for this species in the immediate vicinity of the traps. This hypothesis is supported by the capture of two *Apamea ophiogramma* Esp. and one *Enargia ypsillon* D. & S. on the same night. Both of these species are also usually associated with damp localities and are unusual in light trap catches on the estate. Further, there was a high level of flight activity on this night with relatively large numbers of all species in the traps.

Single individuals of *Ptycholomoides aeriferanus* H.-S. were caught at separate sites on 14, 19 and 20th July. These records suggest that *P. aeriferanus* is well established at Rothamsted. The national tortrix recorder, E.F. Hancock (pers. comm.) states that this species is well established in southern and south-eastern England, but little is known about the frequency of its occurrence. Further records from the estate network may help to fill this gap in our knowledge.

A single individual of *Acronicta aceris* L. form *infuscata* Haw. was caught on 21st July. Only the typical form has previously been recorded here.

Thanks are extended to Mrs I. Reay and Mr W.C. Hunt for operating the traps at Empingham and Terrington St Clements respectively and to Ted Hancock for his observations on *P. aeriferanus*. —Adrian M. Riley and Martin C. Townsend, Dept. of Entomology and Nematology, Inst. Arable Crops Res., Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ.

Larvae of *Coleophora therinella* Tengström (Lep.: Coleophoridae) in Britain.

Following the note by Mr J.M. Chalmers-Hunt in *Ent. Rec.* **102**: 189-190 and having found an occasional *C. therinella* in my garden moth trap, I searched the nearest known area of *Bilderdykia convolvulus* on the edge of a downland cornfield about half a mile away. Two cases were found on 27th August 1990 but further extensive searching on 30th August and 8th September produced no more cases or signs of feeding.The larva in the larger case continued feeding until at least 3rd September but was found "fixed" on 8th September and the smaller was probably about two weeks behind this. The case is tri-valved, dark brown and covered with fine soil

particles. It is held at approximately 30° to the seed surface and signs of feeding are circular holes with raised edges, the size of the case apertures, on the green seed covering. One seed had two such holes in one surface and one in each of the other two surfaces. Both cases were found on trailers near to the ground and concealed by other vegetation.

I have found no way of distinguishing the imago, usually somewhat rubbed, from the number of other similar species of *Coleophora* that are common in a trap at the appropriate time of the year. I have dissected all *Coleophora* moths coming to my trap since 1986 and this has revealed five specimens (earliest 23rd June, latest 27th July) over five years from Winchester VC11. Dr J.R. Langmaid has had a slightly less number from Southsea VC11 and the late Mr D.W.H. ffennell used to take it regularly but not commonly at his trap at Martyr Worthy VC12. This year Dr P.H. Sterling passed to me all the *Coleophora* that came to his trap at Didcot VC22 and dissection showed that these included one *C. therinella*. This would seem to indicate that the species is fairly widespread but at very low density and that, unless the new knowledge of its larval habits enable more larvae to be found, its true distribution will only be known if the genitalia of all *Coleophora* found between late June and late July are examined.— Col. D.H. STERLING, "Tangmere", 2 Hampton Lane, Winchester, Hants SO22 5LF.

Unusual dates for imagines of *Mythimna straminea* (Treit.) and *M. comma* (L.) (Lep.: Noctuidae) in1990.

Whilst enjoying an entomologically exciting holiday at Branscombe in South Devon (see details elsewhere) I was surprised to take a fresh specimen of *Mythimna straminea* (Treit.), the Southern Wainscot, on 1st October. This record was capped when I found a fresh specimen of *M. comma* (L.), the Shoulder Striped Wainscot in my garden trap at Virginia Water, N.W. Surrey, on the night of 24th October.

M. straminea is stated to be univoltine throughout its range and *M. comma* is essentially univoltine in Britain, though occasional second brood examples have been noted. On the Continent this latter species is regularly bivoltine over at least part of its range. I know of no previous October records for *straminea* and the *comma* is the first I have seen in the autumn in 21 years of recording here. Both specimens could have been the result of delayed emergence from the regular June brood (*comma*) or July brood (*straminea*). However, a second generation seems more likely, especially in the case of *comma*.

The extended summers and mild winters we have enjoyed in Britain over the past several years may well have prompted *comma* to adopt the more regular bivoltine habit of this species in Europe. And are the same climatic conditions triggering a possible bivoltine tendency in *straminea,* at least over the most southern part of its range? Certain species are well known to produce an additional generation in those years when the summer is fine

and/or the onset of winter is delayed. Further records are necessary to determine whether the list of insects with this habit is growing longer as a result of the current trend to climatic warming in Britain.

References

Heath, J. et al (1979). *The Moths and Butterflies of Great Britain and Ireland.* Vol. 9.

Hoffman, Dr E. (1897). *Die Gross Schmetterlinge Europas.*

—PETER BAKER, Mount Vale, The Drive, Virginia Water, Surrey GU25 4BP.

An exceptionally early date for the Stag beetle *Lucanus cervus* L.

The advanced emergence of many insects has been quite remarkable in 1990, none more so than that of the Stag Beetle *Lucanus cervus.* In the suburbs of south London, this is a common species from mid June onwards, with males frequently encountered on pavements. This year, the earliest record I have is 6th May (1990) when two males were seen on the pavement near my home. At the same locality on 15th May, I saw a solitary male and a pair *in cop.* All of these individuals are likely to have emerged from an old lime *Tilia* x *europaea* stump which has been colonised for many years.

On the subject of Stag beetles, the following observations may also be of interest: Stag beetles, especially males, are readily attracted to m.v. lights. Grounded individuals require a vantage point from which to take off and climb any appropriate vegetation as a prelude to wing beating. By chance, the majority climb frail plants and, consequently, as they flap their wings the plant bends over, directing the hapless beetle earthbound again. To be successful, it seems that the insect must be virtually vertical whilst taking off.

The ability of male Stag beetles to use their mandibles seems to be underestimated by some people. They are by no means as weak as some would believe. This was clearly illustrated by my cat, when playing with a male Stag beetle which had come to my m.v. light the previous night. Soon, there was a loud scream as the cat leapt into the air impaled through its nostril by the beetle's mandibles which are clearly both fast and powerful, and deserve respect.— R.K.A. MORRIS, 241 Commonside East, Mitcham, Surrey CR4 1HB.

***Dichrorampha senectana* (Guenée) bred from *C. leucanthemum* (L.), Ox-eye Daisy.**

Little seems to be known of the larval foodplant of this species in Britain. Bradley, Tremewan and Smith (1979) cite Meyrick (1928) as stating that it perhaps feeds on *Chrysanthemum* and continental authors who record the same foodplant. Emmet (1988) cites these continental authors.

On 11th October 1989 I visited Tregantle Cliffs, near Plymouth,

Cornwall VC2, a site at which this species has previously been found. Roots of Ox-eye Daisy proved surprisingly difficult to find but eventually a few small and unhealthy looking plants were located and dug both from the cliff face and from vegetated dunes. The roots were kept out of doors at all times in cages made of plastic and netting. Twelve *D. senectana* (Guen) emerged between 8th June and 8th July from those plants taken from the cliff face, confirming *C. leucanthemum* (L.), Ox-eye Daisy, as a British foodplant for this species.

I was also interested to rear from the same plants well over 50 *Dichrorampha acuminatana* (L. & Z.), which emerged between April and July. I suspect that the malaise of the plants collected and the fact that, uncharacteristically, they produced no new shoots in the root cages in the spring, had something to do with their infestation with this later species.

References: Bradley, Tremewan and Smith, *British Tortricoid Moths,* **2**, 1979; Emmet, *A Field Guide to the Smaller British Lepidoptera,* 2nd Ed. 1988; Meyrick, *Revised Handbook of British Lepidoptera,* 1928.— MARK STERLING, 9 Upper Heath Road, St Albans, Herts.

More on the larval foodplants of the Burnished Brass Moth, *Diachrysia chrysitis* (Lep.: Noctuidae).

Further to my note on the larval foodplants of *D. chrysitis* (*Ent. Rec.* **102**: 103-105) Denis Owen informs me that in the famous garden at 66 Scraptoft Lane, Leicester, the larvae of *D. chrysitis* have been found feeding on Spearmint *Mentha spicata, Hyssopus officinalis,* Sweet Marjoram *Origanum marjorana* (all Labiatae), Michaelmas Daisy *Aster novi-belgii* (Compositae) and also on members of two families not mentioned in the article, Parsley *Petroselinum crispum* (Umbelliferae) and Garden Pea *Pisum sativum* (Legmuinosae). He reports that *O. marjorana* is the normal foodplant, larvae being found on it every year, whereas it has not yet been found on Stinging Nettle *Urtica dioica.* In his Oxford garden it occurs most years on *Mentha spicata.*

Clearly *D. chrysitis* is neither dependent on nor found mainly on nettles in these gardens, in which other herbaceous dicotyledonous plants are available. If a choice exists in semi-natural sites the same situation may well apply. The species appears to have no particular affinity for members of the order Urticales other than nettles — I am not aware of any records from the other families within the order including Cannabaceae (hops), Ulmaceae (elms) and Moraceae (figs). The abundance of records from nettles may be simply because nettles are so common around human habitation and, having been reported from nettles, other workers have tended to concentrate their efforts on them. Nettles are also easier to sample than many other herbs because of their relatively large size.— PAUL WARING, Nature Conservancy Council, Northminster House, Peterborough PE1 1UA.

***Hyles gallii* (Rott.) (Lep.: Sphingidae) in Inverness-shire.**

I would like to place on record that two specimens of *Hyles gallii* (Rott.), the Bedstraw Hawk, were seen in an m.v. trap run near Kingussie on the night of 31st July 1990.

I have been told of previous Highland records for this insect with a possible point of origin being Denmark or the surrounding area. Or could they be locally bred after two mild winters? It is worth noting that, although the prevailing wind at the time was from the south-west, the whole of Britain had been subjected to prolonged periods of easterly winds during the earlier part of July.— PETER BAKER, Mount Vale, The Drive, Virginia Water, Surrey GU25 4BP.

***Leptacinus intermedius* Donis. (Col.: Staphylinidae) at Monks Wood, Cambs.**

I was surprised to read Mr A.A. Allen's recent paper on the status of *Leptacinus intermedius* in Britain (1990, *Ent. Rec.* **102**: 289-290) as I had never had any doubts about this species. However, it did prompt me to check the identity of four specimens standing over this name in my collection, all from Monks Wood in Vice County 31 (Huntingdon).

In my First Supplement, 1965, to the Coleoptera of Monks Wood National Nature Reserve, Huntingdon (1968, *Entomologist's Gaz.* **19**: 9-20), I added both *L. intermedius* and *L. batychrus* (Gyll.) collected in cut grass on 15th June 1965. This record refers to a male of each species. The following day I returned to sieve the heap of grass mowings behind the garage block at Monks Wood Experimental Station and against the boundary of the National Nature Reserve (TL200797). I obtained two female *Leptacinus* which were determined at the time as *L. intermedius* on colour and general appearance. Upon re-examination I can find no reason to doubt or alter this identification. On 9th September 1969 I collected a second male from the surface of an open tank of formalin containing seal specimens belonging to temporary residents from British Antarctic Survey. The tank was situated about ten metres from the site of my earlier captures.

I agree with Mr Allen that Donisthorpe's figures depicting the heads of three species of *Leptacinus* are misleading (1936, *Entomologist's mon. Mag.* **72**: 269-270 & Pl. V.). The head of my second male widens posteriorly and resembles his figure for *linearis* Gr. (=*pusillus* Steph.), which Allen regards as atypical. My remaining specimens of *intermedius* and *pusillus* all have head shapes similar to Donisthorpe's figure for *intermedius*. Anyone wishing to compare aedeagi of British *Leptacinus* are advised to consult Freude, Harde & Lohse (1964, *Die Käfer Mitteleuropas,* **4**, p.159, Krefeld) where G.A. Lohse provides a suite of figures showing the comparative size and shape of the four species. Lohse's key separates off *linearis, intermedius* and *batychrus* on the presence of pronotal microsculpture. *L. linearis* is, in turn, keyed out on its darker coloured elytra and each row of

pronotal punctures not exceeding ten in number. My specimens of *pusillus* are black and two males have 8:8 and 7:8 rows of punctures. In my specimens of *intermedius* the rows of punctures have a tendency to become double resulting in 13:15 and 14:10 punctures in the two males. The two females have 10:9 and 10:11 punctures. In both sexes the fore-body is of a lighter reddish-brown colour.

It was fortuitous that my first record of *L. intermedius* was published in a list of Coleoptera from Monks Wood NNR. Had it not been I certainly did not consider that it warranted a note in one of our entomological journals. I will be very surprised if other coleopterists were not of a similar mind and expect Mr Allen's paper to stimulate them to respond with further records.—R. COLIN WELCH, Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs PE17 2LS.

Late captures of *Hepialus fusconebulosa* De Geer, the Map-winged Swift (Lep.: Hepialidae)

A single female *H. fusconebulosa* was caught in the Rothamsted Insect Survey light trap at Rhandirmwyn, Dyfed (Site No. 346; OS grid ref. SN782 441) on 18.viii.1990. Reference to the Insect Survey database shows that the normal flight period at this site is between mid-June and mid-July. However, two early individuals were caught on 3.vi.1978 and 3.vi.1982, and there are further late records on 8.viii.1977 and 17.viii.1987.

The total number of records of *H. fusconebulosa* for the entire UK trap network is 4,835. Of the 37 records from the first half of August, 24 are from Scottish and northern English traps. A further seven idividuals have been caught during the latter half of August and early September, and all but one of these were recorded at Rannoch, Perthshire (Site No. 29, OS grid ref. NN595 563) and Carbost, Skye (Site No. 50, OS grid ref. NG385 267).

The bias of these late records towards Scottish sites supports Skinner's (1984) statement that the flight period of *H. fusconebulosa* is delayed in northern Britain. Future monitoring may reveal adjustments of the flight period of this species in response to climatic change. [Reference: Skinner, B. (1984). *Colour Identification Guide to Moths of the British Isles.* Viking, Harmondsworth.]—ADRIAN M. RILEY, Dept. Entomology and Nematology, Inst. of Arable Crops Research, Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ.

Convolvulus Hawk Moths in West Sussex.

J.K. Knott's recording of a specimen of *Agrius Convolvuli* L. at Southwater (*Ent. Rec.* **102**: 305) prompts me to record my own sighting in our garden in the middle of September. It was flying over an *Escallonia* hedge, and remained around the garden until it died, in a very dilapidated condition, on 15th September 1990. There was a good deal of convolvulus (*Calystegia sepium*) in the hedge, and plenty of petunias in the garden.—R.C. DENING, 20 Vincent Road, Selsey PO20 9DQ.

Safer Insecticides, Development and Use (Drug and Chemical Toxicology Volume 7). Edited by **Ernest Hodgson** and **Ronald J. Kuhr.** 8vo, pp.592. Marcel Dekker, Inc. New York and Basel. Paper-covered hardback. Price (N. America) $135, (UK) $162.

The use of crop-protection chemicals has been a major contributing factor to the success of agriculture in the industrialised world by feeding its population with increasingly limited resources of both manpower and area of land under crops. The realisation that such success has brought its problems has not been long in coming, particularly with respect to the environmental impact of agrochemicals on non-target organisms and man himself. The result of such increasing environmental concern, both well and ill-conceived has been to change public opinion on the use of insecticides and other chemicals from being the saviour of agriculture to agents for world destruction. The truth, as ever, lies somewhere in between.

This multi-author volume consists of fifteen chapters which review modern research on selective insect control. Such aspects of research cover differences in biochemistry and metabolism between arthropods and vertebrates, methods by which existing types of insecticide can be designed to be more specific, plant resistance and natural insect toxins, use of arthropod toxins as models for insecticides and and the use of bacteria and viruses. In addition, there are chapters on improved safety through reduction of application rates, safety in manufacture (remember Bhopal!) and the commercial viewpoint of industry.

There is also an extensive though rather uneven chapter of the biochemistry of the insect nervous system, which is the major target for insecticides. As is inevitable with a multi-author work, the quality of coverage varies from chapter to chapter. Particularly noteworthy are the chapters on Metabolism of Xenobiotics by Dauterman and Hodgson and Endocrine Based Insecticides by Sparks. On the debit side, the chapter by Nishimura, Iwamura and Fujita on Quantitative Structure-Activity Relationships of Insecticides consists of a series of detailed Hansch correlations, not all of which are based on insecticides. Very relevant areas of research which are not covered are eco-toxicology and the use of insecticides in integrated control with predators and parasites.

Rather unfortunately,the overall proof reading of the volume leaves much to be desired. The presence of a typist's ??? in one reference and poor use of hyphenation, including one word which is split between pages are inexcusable. Notwithstanding this lack of attention to detail and care, this work is a very useful compendium of modern insecticide research and is particularly strong in the chapters on insect biochemistry.

The high cost of this volume means that it will be bought mainly by libraries and institutions. It will, however, be an indispensible book to all those involved in the design and application of modern selective insecticides.

P.J. Jewess

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

(Founded by J.W. TUTT on 15th April 1890)

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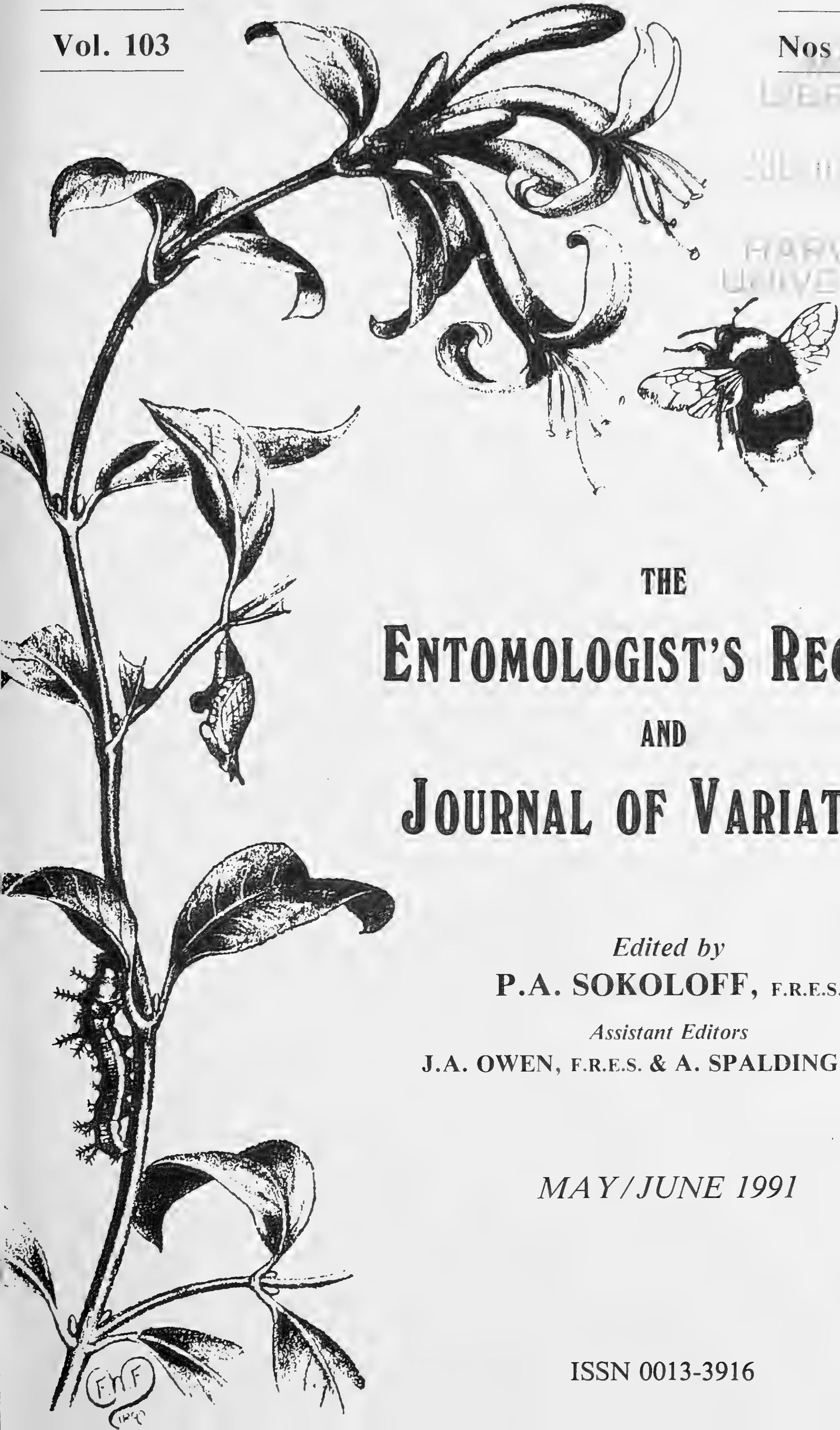

THE

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Illustrations must be the original (not a photocopy) without legend which should be typed on a separate copy. Photographs should be glossy, positive prints. Authors of long papers, or submitting valuable originals are advised to contact the Editor first.

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CHRYSODEIXIS CHALCITES (ESPER, 1789) (LEP.: NOCTUIDAE) — OBSERVATIONS ON THE LIFE CYCLE IN CAPTIVITY

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DURING October 1990 I had the opportunity of rearing two separate broods of what was then assumed to be *Chrysodeixis acuta* (Walker, 1858) from females caught in Essex. Later investigation threw a certain amount of doubt over the true identity; indeed, this doubt also extended to past British records for this species. It seems appropriate to relate details of the life cycle as observed from rearing the two broods of what turned out to be *Chrysodeixis chalcites* Esp.

The first brood arose from a fresh, rather dark female caught by Mr S.P. Moxey in his home at Mistley, Essex, the moth flying in through an opened door at 11.30 pm on 20th October. Mr Moxey passed the specimen to me the following evening for confirmation and to allow a study of principally the early stages to be undertaken, for by this time 145 ova had been randomly laid on the walls of a small container. A further 81 ova were produced on the 22nd before the moth expired, still in fine condition, on the 24th, making a total of 226 ova. This is under half the total number of ova yielded by subsequent females. The abdomen was still rather large, indicating that the full compliment had not been laid.

The second brood was given to me by Messrs A.J. and S.F.J. Dewick in the form of 130 second instar larvae obtained from a rather golden-hued female caught at Bradwell-on-Sea, Essex on 17/18th October — one of five specimens recorded that night. The following notes are based on observations essentially from the Mistley stock unless otherwise stated. Both broods developed at approximately the same stage and both were practically identical in characteristics.

Ovum

When fresh the ovum is a translucent, pale green domed structure, approximately 0.7mm across the base by 0.5mm high. From the mycropyle extend from between 28-32 ribs, reaching almost to the base, which are finely reticulated with small ridges.

By the third day the ova had turned slightly yellowish, with faint

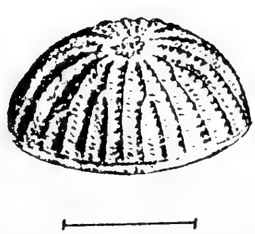

Fig. 1. The ovum when freshly laid. Scale bar = 0.5mm.

comma-shaped structures visible internally via transmitted light. At this point it was clear that a large number (approximately 66%) of the eggs would not develop: these were small in size, rather misshapen, and probably infertile. It is interesting to note that one of the Bradwell females was seen to call yet went on to lay fertile eggs. Bred females habitually mated at least twice, and on one occasion three times. By the fifth day the coiled shape of the larva could be determined together with three sharply defined reddish specks. The following morning saw the yellowish region of the gut appear and the reddish specks, which correspond with the position where the ocelli and mandibles are found, move to their final location. By the evening of the sixth day the larval head and prothoracic plate had rapidly darkened, and a few prominent body hairs became visible just prior to hatching which occurred early on the seventh day.

Fig. 2. The developing ovum. From left to right 3rd day, 5th day and 7th day. Scale bar = 0.5mm.

First instar larva

After seven days in the egg stage the larvae hatched, each taking around twenty minutes to emerge before eating approximately 50% of the shell. At first the 2mm long larvae are practically colourless. The most conspicuous features are the dark grey head, finely edged black between the frons and hemispheres, with pale ocelli, the dark grey prothoratic plate and the yellowish gut. After the first feed of, for example, stinging nettle, the gut turns bright green and a series of prominent black spots bearing from one to two hairs appear on the thorax and abdomen, typically twelve per segment.

A variety of plants were offered to first instar larvae.

Accepted: *Geranium* spp., *Pelargonium* sp., *Urtica dioica* (for which a strong preference was shown), *Nicotiana* sp., *Lamium maculatum, Ballota nigra.*

Rejected: *Lamium album, L. purpureum, Fuschia* sp., *Lonicera periclumenum.*

The larvae are light-sensitive, restlessly moving if disturbed to the underside of a leaf. Here they graze the lower epidermis leaving a series of translucent windows, frass at this stage being rather liquid and green. They readily suspend themselves from silken threads when danger threatens.

Two days after hatching a few larvae were seen to fix strands of silk randomly to hairs of the foodplant, and by the third day around 50% of

the stock — now 4mm in length — had ceased feeding, losing the bright green in the gut and appearing pale in coloration. The purpose of this spinning was to create a small raft of silk into which the larva can firmly engage its crotchets prior to moulting. Once constructed the larva will not readily abandon this raft, even if disturbed or placed in strong light.

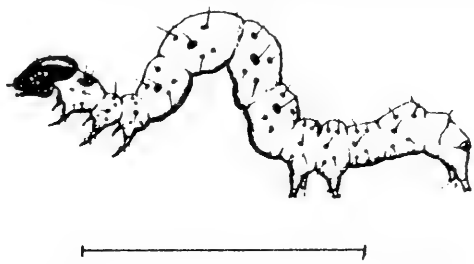

Fig. 3. First instar larva, before feeding. Scale bar = 1mm

Intermediate instars

After moulting the character of the larva alters, resembling that of the final instar. The most noticeable change is with the head, which becomes concolorous with the body, or perhaps a slightly deeper green. The junctions of the plates retain their dark edgings, which are made more conspicuous because of the pale head, there is an additional black streak at the base of the epicranium, and the ocelli are now black. The prothoracic plate is hardly visible, giving the body almost a uniform pale green appearance with a hint of two pale lines running along the back. At this stage the true legs are black and the prolegs are pale green. The dark spots are retained and the large pairs on abdominal segments 1 - 4 are particularly noticeable.

In subsequent instars (numbers three to five) the pale dorsal lines increase in number — eventually six are present — and become gradually brighter. A pale spiracular line becomes visible towards the end of the third instar, by which time the black spots on the body have become less conspicuous. The penultimate instar larva is around 20mm long, and silk is again used for a moulting platform, but this is virtually invisible. Apart from the veins the whole leaf is eaten and the frass is black.

Final instar larva

The ground colour of both broods was lime-green with only minor variation. A central band of ground colour on the dorsum (which sometimes appears darker as the blood vessel beneath contracts) is flanked on either side by three irregular pale yellowish subdorsal lines which vary somewhat in brightness, almost merging to form a solid band in a few larvae. There is a conspicuous white spiracular line, punctuated by pale violet spiracles, sometimes dorsally edged with dark green in feeding larvae. The underside is yellowish-green, faintly speckled with pale hair spots

Fig. 4. Final instar larva. Scale bar = 5mm

which in earlier instars were the prominent black dots. The colour of all legs is pale green, with occasional black flecks on the thoratic legs.

Fully-fed larvae average 30mm in length but are able to extend themselves to 38mm. After around 17 days in the larval stage they become very pale, virtually losing all traces of markings, and void a bright yellow pellet of frass. Just prior to pupation the larva engages in a curious process of "cleaning" itself. A droplet of greenish liquid is held by the mouthparts while the larva meticulously washes itself. Alternatively the larva may be coating its body with chemicals derived from the foodplant as a form of defence. A few early instar larvae were also observed to do this, usually when approaching a moult.

Pupa

Fully-fed larvae spin a white cocoon in which to pupate, not showing any particular preferred site, and occasionally incorporating a whole leaf used tent-fashion.

It took from between two to four days for the pupa to form once feeding had ceased. Considerable colour variation occurred in the pupae, which typically measured 20mm long. The smallest pupa (18mm) was female; the largest (22mm) was male. Usual examples were pale green ventrally with a dark brown dorsal stripe extending by varying degrees to the wings. In 40% of both stocks pupae were totally brown or dark brown. With age some pale green pupae turned rather straw-coloured. The cremaster bears two large curved spines, each tipped by a pair of tiny hooks, surrounded by six smaller spines which are tightly coiled. Tergal spines are minute, each segment bearing two dorsally and two ventrally.

Pupae were removed from their cocoons, sexed, and placed in separate emerging chambers in order to allow a selective breeding programme to

Fig. 5. Female pupa. Scale bar = 5mm

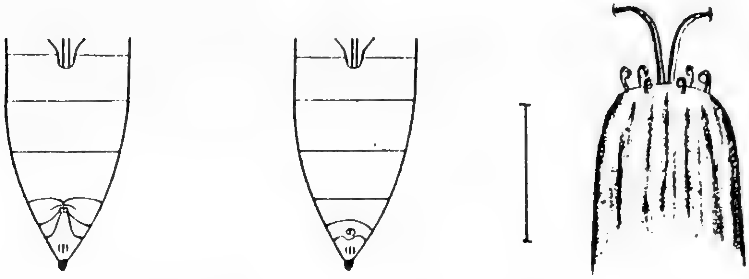

Fig. 6. Sex differences in pupae (schematic). Male on left, female on right. Far right — details of cremaster. Scale bar = 0.5mm.

commence. Female pupae were on average slightly smaller than those of males, and the development of female pupae occurred slightly earlier. For example, by the 20th November 75% of all pupae produced up to that time were female; by the 22nd this proportion had fallen to 66%; and by the 24th — when all larvae had changed — 60%. This final disparity between the sexes was true for both broods.

The pupal stage lasted from between 15 - 18 days, 17 days being average. Although emergence mostly tended to occur randomly throughout a 24 hour period, there was a slightly favoured period towards the evening.

Imago

Adults lacked the gold scaling normally associated with *chalcites* and both broods closely resembled the specimen of *C. acuta* figured by Skinner, 1984 (fig. 7, plate 41), with remarkably little variation. The average wingspan of Mistley males was 40mm; that of females was 37.5mm. Bradwell stock specimens in general were a shade smaller (37mm and 35mm respectively). The size range of all specimens was from between 34mm - 42mm.

Females "practiced" calling after a day or two, although at this stage the males were not interested. The first mating took place six days after emergence, by which time the female's abdomen had swollen considerably. When calling,the female opens her wings which then vibrate as though the moth is warming the flight muscles, but probably aids in scent dispersal. The male displays little or no courtship behaviour, merely alighting usually in front of a female and then reversing into position. Pairs remain coupled from between one to three hours. Females were observed to mate at least twice each.

Egg production commenced a day after the first mating and continued over the following four days. An average of 570 ova was produced by each female, ranging from 480 - 630. The following flight periods were observed from watching adults housed in flight cages subject to natural lighting. A strong dusk flight occurred, lasting for an hour or so, when feeding took place. During the hours of darkness there were mostly short spells of

activity, which included feeding and mating. A short but strong dawn flight was regularly seen when feeding took place. Activity during the day was an infrequent and irregular event. In the wild, with sources of nectar less reliable, these flight periods would probably be more lengthy and egg production affected.

Genitalia

Male. The whole structure is dominated by a large globular cluster of tightly packed dark-brown scales forming a close pair of scent brushes which are firmly anchored to a specially chitinised plate, part of the sternum of abdominal segment eight. (These in fact probably do not function as scent brushes. A twice mated male was dissected and showed the structure to be intact, and I saw no sign that the brushes were everted on males just prior to mating.) Once this has been removed the sclerotized parts of the genitalia are revealed. The valvae are slender and tipped with a small patch of inwardly curving spines. The vinculum is long and narrow, tapering to a fine point. In comparison to these parts the aedeagus is simply massive. The vesica is adorned with 25 rod-like cornuti in two groups, which sometimes are strung out to form a continuous criss-cross pattern and in other examples are neatly packed together, and a large spear-shaped cornutus at the opening.

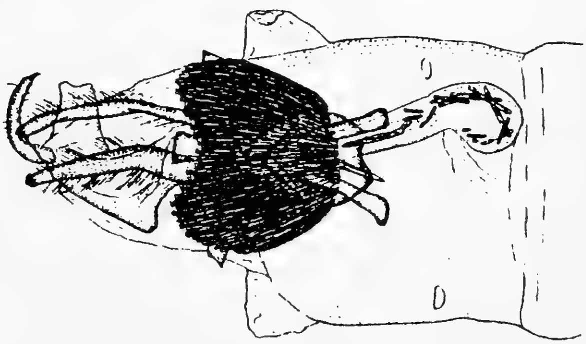

Fig. 7. Male genitalia, *in situ,* descaled showing position of scent brush. Scale bar = 2mm

Female. The ductus bursa is enlarged and is delicately sculptured with small bulges. The bursa is finely ridged lengthwise and carries one thorn-shaped and several rod-like structures. The ovipositor is simple and hardly extensible.

Rearing

At normal room temperature (21°C.) the species takes around 53 days to complete one cycle. This is extended to 64 days at 16°C. Losses were small, just 3% of larvae died — all in the final instar — when overnight they turned dark brown and went liquid. Two pupae failed to shed the

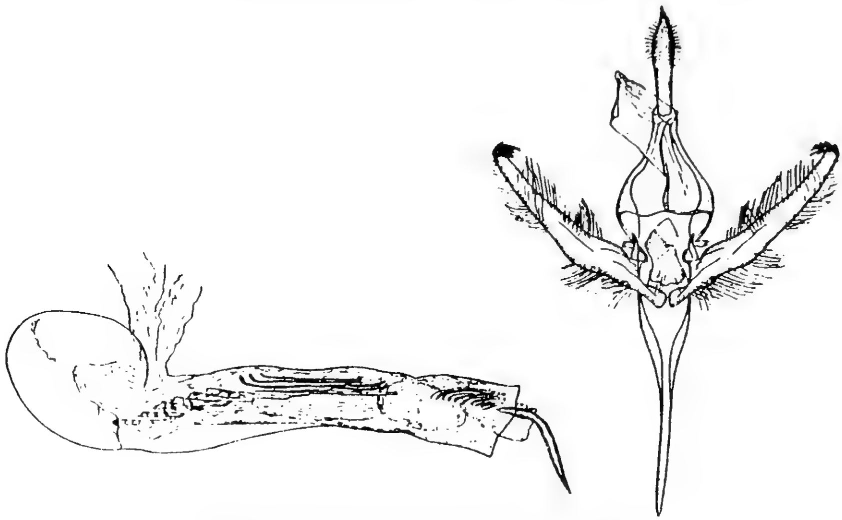

Fig. 8. Male genitalia, with aedeagus enlarged.

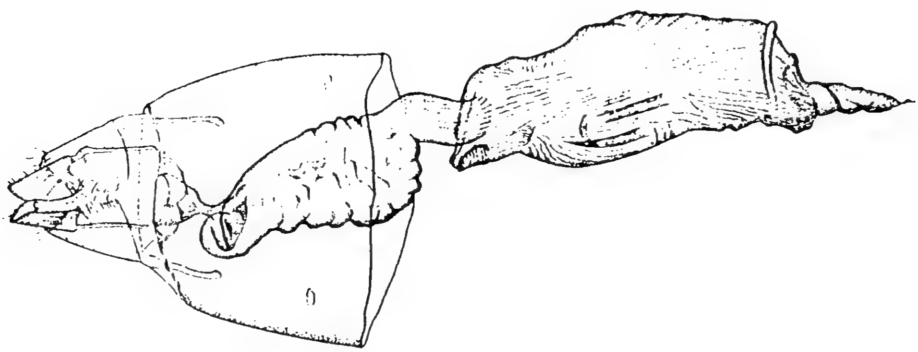

Fig. 9. Female genitalia.

larval skin and also died. Light appeared to make no significant difference to the speed of development. Most favourable results were had from small numbers of larvae reared in 3½″ plastic tubs. Table 1 shows a typical life cycle.

Conclusions

The description of the early stages of *Chrysodeixis chalcites* given here differs significantly from that given by Lorimer (1983), who copied the description given by Forster & Wohlfahrt (1971). The moths themselves most closely resembled the specimen of *Chrysodeixis acuta* figured by Skinner (1984). It is clear that much further work needs to be done on both the biology and systematics of the *acuta/chalcites* complex before one can confidently assign an identity to any wild-caught specimen in this genus.

Table 1. Life cycle of *Chrysodeixis chalcites* at 21°C.

Stage	**Started**	**Duration (days)**	**Average size — mm**
Ovum	21 Oct	0	0.7 x 0.5
1st instar	27 Oct	6	2 - 4
2nd instar	1 Nov	11	4 - 8
3rd instar	5 Nov	15	9 - 15
4th instar	8 Nov	18	17 - 23
5th instar	13 Nov	23	25 - 38
Pupa	18 Nov	28	20
Imago	4 Dec	44	37 (wingspan)
Ovum	13 Dec	53	—

At a constant temperature of 2.5°C. adults became completely helpless after ten minutes but were able to withstand this treatment for up to three hours. Longer periods are, of course, fatal.

Acknowledgements

I would like to thank Mr S.P. Moxey, Dr I. Kitchen, S.P. and A.J. Dewick for their help and encouragement.

References

Forster, W., and Wohlfahrt, T.A., 1963-1971. *Die Schmetterlinge Mitteleuropas* 4. Stuttgart.

Lorimer, R.I., 1983, in Heath, J. & Emmet, A.M. *The moths and butterflies of Great Britain and Ireland* 10. Harley Books.

Skinner, B., 1984. *Moths of the British Isles*. Viking.

Further records of "suicidal" Lepidoptera

I was most interested to read Mr Mackworth-Praed's note on this topic (*Ent. Rec.* **102**: 152), as I have made a number of similar observations over the years, with a number of Meadow Browns and "Whites" coming to grief in ponds on hot days.

I recall two incidents with fire, the first in the autumn of 1965 when, as a schoolboy, I collected hibernating examples of the Peacock and Small Tortoiseshell butterflies, as well as the odd Herald moth from old air-raid shelters on a disused airfield. Arriving home, I proudly showed them to my parents whereupon the Small Tortoiseshell took flight and, having circled around a few times, flew straight into the fire and was consumed.

In the drought of 1976 I was collecting on Barlaston Common when a small heath fire broke out. To my surprise, a Wall Brown (*Lasiommata megera*), which could have easily avoided the fire, flew straight into a burning gorse bush, and perished.

Whether this behaviour reflects an attraction to heat, light or the flickering of flame, remains an enigma.— J. Koryszko, 3 Dudley Place, Meir, Stoke-on-Trent ST3 7AY.

REMINISCENCES OF AN AMATEUR LEPIDOPTERIST 1920-90

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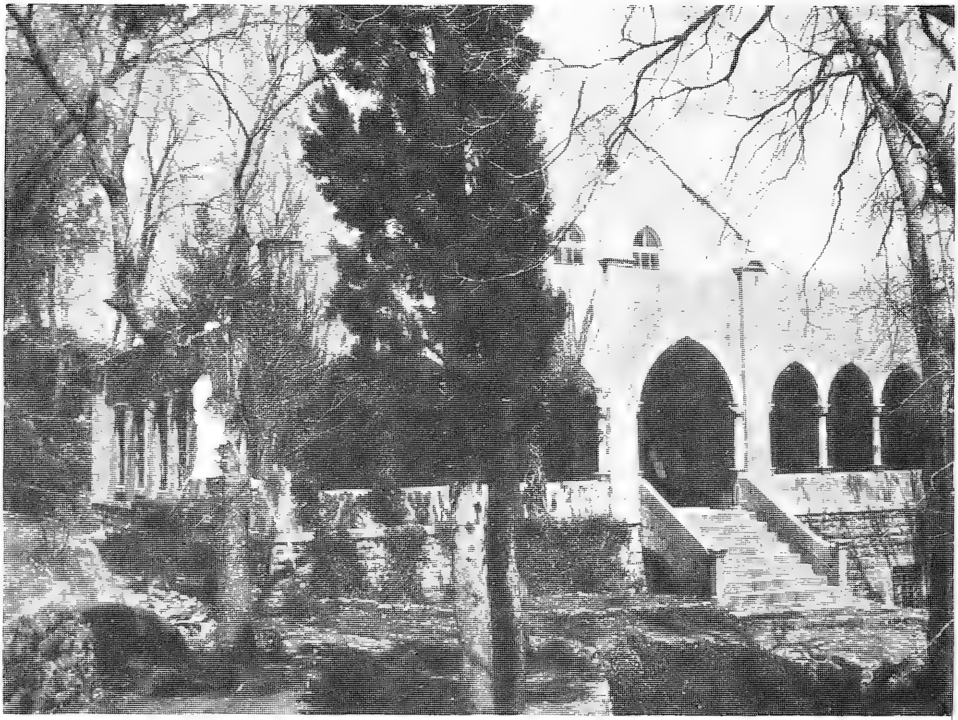
(Continued from page 68)

BEIRUT itself, for the capital of a state, was surprisingly good in Lepidoptera. I lodged in suburbs on the high ground of west Beirut, not too far from the administrative centre where the Consulate then stood. This whole area was still undamaged by the later civil wars: a rich East Mediterranean fauna, even the odd *Charaxes jasius* (L.), could be collected right there, and was an eye-opener to one fresh from England. With my equipment and invaluable reference-books I could not resist breeding and catching what lay ready to hand, starting almost as soon as I arrived. In five minutes from my flat I could reach the American University, where it was my pleasant duty to study Arabic from Lebanese or Syrian teachers. There was no objection from the staff to my nocturnal visits to its grounds.

Founded in 1866 by an American Presbyterian Mission, it now consisted of over forty buildings, some very grand, built mostly of local limestone at three hundred feet above the sea, in a walled park, falling to sea level and green with unspoilt indigenous vegetation such as carob, terebinth, *Quercus coccifera* and *Calycotome villosa,* which burst into yellow flower a few months after my arrival. Rough roads ran down to a sports stadium at the foot of the cliffs, close to the sea where there was also access to bathing from rocks. Only this part was entomologically unattractive.

Years later, when I revisited Beirut in the fifties and sixties, I was disappointed in the habitat changes. Ras Beirut, the eastern cape with its "pigeon rocks", had ceased to be a wild cliff top where old tamarisks lined the winding roads: high-rise flats had been constructed on this choice spot. And the American University park's former quality of a miniature nature-reserve had been transformed, the green rocky slopes now being tame terraces where exotic, florid hibiscus trees lined asphalt walks for the students.

To return, however, to the thirties, in which I was lucky to see the city, and to learn at the University. A long summer vacation from late June to late September was taken by the university whose teaching staff, including my Arabic teachers, dispersed to their homes or lodgings in the mountain resorts away from the humid heat of the littoral. Two of them (in 1933) arranged to be at a wooded middle-height resort called Duhour Shweir, and my rival student Vice-Consul and I continued our lessons amid new and beautiful surroundings. We lodged at Cedar Lodge Hostel, constructed primarily for the benefit and recuperation of missionaries and their families who worked most of the year in less salubrious parts of the Middle East. It stood in an oak wood just east of the ridge where the main street of the resort lay.



Cedar Lodge Hotel, Duhour Shweir, Lebanon, 1933.

On the oaks were the huge lappet caterpillars of the Cos silk-moth, *Pachypasa otus* Drury, in fact the site teemed with all the denizens of the garigue woodlands of the Eastern Mediterranean area, the only nasty one being a giant species of centipede which occasionally attacked diners as they sat at the hostel tables.

One of our teachers, Costi Zuraik, a blue eyed and red haired Christian Arab from Damascus, lodged normally in a pension on the ridge at 4,000 feet: the other, called Antun Sa'ada, was an eccentric who had inherited a pine-clad sector of woods close to the hostel, and lived that summer in the top of one of these trees. We had to mount a ladder to hear his comments on our Arabic composition, and on a platform high up were a camp-bed, a folding table and a small book-shelf.

During Turkish rule, Antun's father had been banished from "Syria" for nationalist activities, and Antun's boyhood had been spent in Brazil. Only recently returned to his "homeland", he believed in the unity of a greater Syria than it enjoyed now under French mandate, and was an admirer of Mussolini. He often inveighed against the French, and also the Zionists: behind educational and literary activities he was already feeling his way towards political action.

Later he founded his own Pan-Syrian party, and became well-known, even idolised: but he was executed by Lebanese politicians in July 1949 (see Seale, 1985, chapter 8).

During my second year I had a car of my own and went further afield on short collecting trips: not only to Bsherreh as already mentioned, but Antioch, the Euphrates valley and Palmyra: in April 1934 the ruins of the latter, far out in the desert north of Damascus, were crawling with *Cryphia* caterpillars feeding on the orange lichens. This particular holiday trip was made with Bayard Dodge, his wife and sons, and another Vice-Consul. Dodge was the AUB President.

With Bayard Dodge and family, near Abu Kamal, Syria, 1934.

During my first two years in the Service, for photographing people or caterpillars, I had nothing better than an O Brownie box camera. For close-ups I propped a magnifying glass, stronger than the standard "portrait-attachment" between it and the object. Using these prints I published in the *Entomologist's Record* my first two "Early stages" articles in 1935 and 1936. But from August 1936, on the recommendations of Willy Tams of the British Museum (Natural History), I purchased a second-hand *Exakta* camera, and first used it on my canoe trips on the Tigris, and in the Rowanduz Gorge in Iraqi Kurdistan. I was posted to Iraq in May 1935.

References (part 4)

Seale, P., 1965. *The struggle for Syria,* R.I.I.A., Oxford U.P.

Wiltshire, E.P., 1935. Some notes on the early stages of some Syrian lepidoptera. *Entomologist's Rec. J. Var.,* **47**: (1) -(8) (Pl. 3).

Wiltshire, E.P., 1936. More notes on the early stages of Syrian lepidoptera. *Ibid,* **48**: (9)-(11).

5. Wider contacts

Our consul at Mosul, Jack Finch, was away for the summer of 1935 and I was *locum-tenens* there until October, when I would proceed to Baghdad. After leave in England I picked up a new car in Beirut, a 1935 Chevrolet, and drove solo via Deir-ez-Zor on the Euphrates and arrived at Mosul in three days. The greater part was over gravel or mud desert, and every day I saw many Painted Ladies (*Cynthia cardui* L.) migrating northwards; at night the large moth *Euxoa agricola* Bsd. was equally common on the wing from Deir-ez-Zor onwards.

I had just spent a three-month leave in England, partly at home in Gorleston and partly in London, where I left some Pug pupae from the Lebanon with Dr Cockayne, then resident in Westbourne Terrace and working in the Children's Hospital. The pupae hatched on 15th April and Cockayne consulted Louis B. Prout about them. The latter described them as *Eupithecia quercetica* n. sp. in Seitz 4, sup., p. 204 (1938).

Other contacts, made in London that leave, greatly influenced my subsequent entomological path. At the British Museum in South Kensington I was trying to identify the more difficult of my Lebanese moths when by coincidence Dr Bytinski Salz from Berlin was also consulting Willy Tams. Salz became quite excited about my moths and said he could get the problems identified by some of the latest European experts.

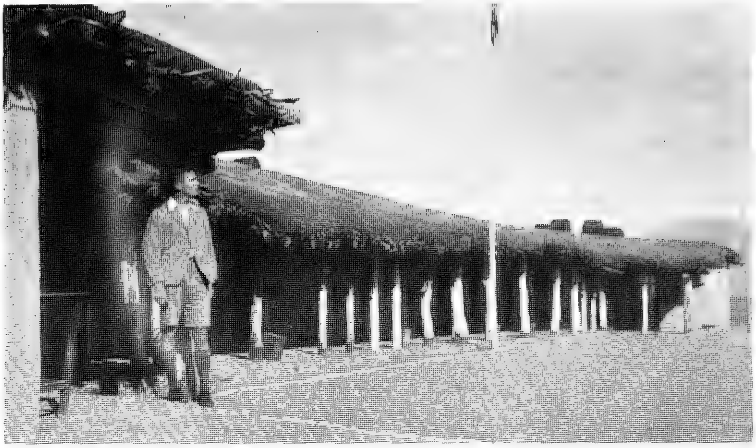
"Your *Cucullia* and *Athetis*" he assured me, "must certainly go to Boursin, the young expert of Trifid Noctuids in the Paris Museum; your *Procris* can only be identified by Dr Naufock at Linz; I myself will describe as new your form near *Nonagria geminipuncta* from Amik marsh; while your micros had better go to Dr Amsel at Bremen. He has collected in Palestine and just produced a great work on this group."

Consequently, soon after arriving in Mosul I heard from Charles Boursin that, among various Noctuids, he had been able to name for me, was a new *"Athetis"* taken at the Cedars of Bsherreh, which he proposed to call *hedychroa*. He suggested I might send him more *"Athetis"* if I found such around Mosul. This letter was the first of a long series of letters which continued until 1971. During this time he described more *"Athetis"* from Iraq and Iran but his own researches showed that *Athetis* was the wrong name for the genus. At first he used the name *Elaphria* instead, but later he and others settled that *Caradrina* was the best.

On arrival at Mosul I also learned that there was an unusual Vice-Consulate in Iraqi Kurdistan on the road from Erbil to Urumiya in N.W. Iran: the place was a village called Diana, where some Assyrians, once refugees from Turkish massacres, had settled. At the end of World War 1 these hardy mountain Christians of Eastern Turkey had trekked southwards and joined the British Indian expeditionary forces which had reached Baghdad and were fighting the Turks north of Mosul. It was eventually decided to enlist the able-bodied men as levies to guard our air-fields, etc, in Iraq; these people also provided staff for our two posts at Mosul and Diana, a part of Iraq where they felt more at home than at Baghdad.

The Vice-Consulate at Diana, a rather primitive structure, was now supervised from the Mosul Consulate, and as Acting Consul at the latter I had to visit Diana periodically.

Diana, near the provincial capital of Rowanduz, was closer than Rowanduz to the new road, but the expected trade with N.W. Iran did not progress as much as expected, and beyond calling on the various Iraqi authorities in the province there was little work for me up there, though out



Vice-Consulate, Diana, Iraq.

of curiosity I went past Diana and as far as Rayat and Haj Omran on the frontier.

This road from Erbil to Persia, the first "carriage" road in those parts, was then still known as the Hamilton road, having been recently constructed by a Scots engineer of that name. It could boast one or two bridges permitting cars and lorries to cross such rivers as the Rowanduz Chai, though to reach Erbil from Mosul I had to cross the Zab by ferry. After leaving the spectacular Rowanduz Gorge this small river joined the Zab after passing through parallel limestone ridges covered with small oak trees, a type of country which I found again further south-west in the Zagros chain in Western Persia. The gorge where I collected by night, from my base at Diana, also contained a huge cave where later important prehistoric finds were made. (For a view, see my 1937 article, Pl. 7; and for Hamilton's account of making the road, see his 1937 book.)

Crossing the Zab river, Iraq.

I was also able to visit the Little Zab in the Amadia province, where one or two other Assyrian settlements existed, and there were also two or three villages of native Jews, though Kurds predominated. From Amadia I visited the mountain-top camp of Ser Amadia, which was a summer camp for British servicemen, a health refuge from camps in the hot plains such as Hinaidi near Baghdad. It was a brief visit, but my diary notes that a Captain Day sent me some more lepidoptera from Ser Amadia a few weeks later.

However, in October Jack Finch returned to Mosul and I drove down to Baghdad, where I lodged at the YMCA and joined the Alwiya club.

The YMCA had a boat-house on the Tigris east bank and its collapsible canoes enabled me to visit the banks and islands of that great river, where Euphrates poplar and tamarisks grew, and I started noting how the annual low water, or early summer floods, affected these rather precarious habitats. At the Alwiya club lights, among various moths, I took a female Noctuid which remained a unicum for many years thereafter. Boursin named it *Rhyacia rafidain,* an Arabic fancy name meaning "two rivers", though whether this species is found along the Euphrates remains to be seen; he also wrote to me about my moths which he named after me, and which I had caught at Rayat; both appeared in Seitz Vol. 3 supplement which was then coming out in parts.

Iraq, after about ten years under British mandate, had become independent only two years before I reached Baghdad, and the British-Indian link was still evident. Below the office of the editor of an English paper, 'The Iraq Times", was a bookshop where I found on sale a book, printed in Bombay, entitled "Fauna of Iraq". It was a collection of reprints published in 1921-2 by the Bombay Natural History Society, and dealt with birds, mammals, butterflies and moths. A colour plate accompanied Peile's article on the butterflies; in included diagnoses by Riley; further articles by Prout, Watkins, Buxton and Rothschild treated the moths.

The compact old city of Baghdad, until 1914 a provincial capital of the Turkish empire, was surrounded by extensive date-palm gardens, watered from the Tigris. During the thirties it started to expand, but the residential quarter, with the club, the YMCA and officials' houses, and the new hospital in the north, retained a garden-like aspect. The Swallow-tail (*Papilio machaon* (L.)) and the Plain Tiger (*Danaus chrysippus* (L.)) typified the temperate and tropical elements in the lepidoptera -fauna still flourishing in these gardens.

(To be continued)

LEPIDOPTERA OF ABERDEENSHIRE AND KINCARDINESHIRE

6th Appendix

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IN THIS, the sixth appendix to the list of lepidoptera of North and South Aberdeenshire and Kincardineshire (Vice-Counties 91-93), 22 species new to the area since the publication of the 5th appendix (*Ent. Rec.* **99**: 111-114) are included. Five species which were recorded in the lists of Reid (1893) and Trail (1878) have been rediscovered and two cases of mis-identification have been corrected.

The second part of the list contains records of scarce or migratory species of macrolepidoptera and the third part is a supplementary list of new vice-county records of microlepidoptera.

Most of the records are those of the authors, records of other lepidopterists are acknowledged in the text.

References

Reid, W. (1893). *List of the Lepidoptera of Aberdeenshire and Kincardineshire.*
Trail, J.W.H. (1878) *Trans. Nat. Hist. Soc. Aberdeen,* 28-42.

Part 1. (New or rediscovered species)

Fomoria septembrella Stt.	92. Near Monymusk (M. Townsend).
Stigmella serella Stt.	92. Muir of Dinnet NNR, mines on *Potentilla erecta,* 1988.
S. perpygmaeella Doubl.	92. Bucksburn, mines on *Crataegus.*
S. oxyacanthella Stt.	92. Bucksburn, mines common on *Crataegus.*
S. betulicola Stt.	Mines on *Betula*: 91. Red Moss, Netherley 92. Muir of Dinnet, NNR.
S. glutinosae Stt.	Mines on *Alnus glutinosa*: 91 near Edzell; 92. Glentanar.
Lampronia morosa Zell.	Common among wild rose, pupates in the shoots (Reid, 1892). 91. St. Cyrus NNR, one, 1987.
L. fuscatella Tengs.	92. Muir of Dinnet NNR, one, 1989 (D. Barbour).
Nematopogon magna Zell.	92. The Craig, Strathdon, one, 1988.
Heliozela resplendella Stt.	Mines common on *Alnus glutinosa*: 92. Elrick Hill and Loch Davan. 93. Gight woods.
H. hammoniella Sorh.	Mines on *Betula*: 91. Near Edzell; 92. Glen Muick (K.P. Bland).
Dahlica lichenella Linn.	92. Glen Muick, one in 1985 (M. Harper).
Diplodoma herminata Geoff.	92. Inver, one, 1988.
Haplotinea insectella Fabr.	93. Gight woods, one, 1987.
Phyllonorycter blancardella Fabr.	91. Inchmarlo, near Banchory, bred from larvae on *Malus domestica.*

Elachista orstadii Palm.	92. Morrone Hill 1984 (R. Knill-Jones, det. gen. E.C. Pelham-Clinton).
Biselachista trapeziella Stt.	91. Near Edzell 1985 (R. Knill-Jones).
B. albidella Nyl.	92. Loch Kander, common 7/86.
Eulamprotes phaella Heckford & Langmaid.	92. Muir of Dinnet NNR, one 7/87.
Scrobipalpa nitentella Fuchs	91. The species previously recorded as *S. atriplicella* F. v R. (common at St Cyrus NNR and bred from *Atriplex hastata*), is now believed to be this species. Records of *S. atriplicella* should be deleted.
Blastobasis decolorella Woll.	92. Busksburn, one in 1986, Dyce, one in 1987, several in 1988 and now (1989) a very common species at light in Dyce.
Olethreutes arbutella L.	92. Braemar (Reid, 1982): Muir of Dinnet NNR and The Crannach near Ballater.
Epinotia maculana F.	92. Braemar, one (Trail, 1878): Muir of Dinnet NNR.
Cydia strobilella L.	92. Tyrebagger Forest (M. Townsend), and near Monymusk, bred from spruce cones.
Catoptria furcatellus Zett.	92. Beinn a Bhuird range and mountains south of Braemar (Reid, 1982): Cairn an Tuirc, 7/87.

[*Pyrausta purpuralis* L. should be deleted from the list for VC92. The specimen taken on Morrone Hill by E.C. Pelham-Clinton was identified before the separation of *P. purpuralis* and *P. ostrinalis* Hb. and he subsequently re-identified it as *P. ostrinalis*.]

Eupithecia abietaria Goeze.	92. Inverurie (Reid, 1892): Tyrebagger Forest, one, 1986 (M. Townsend).
Ennomos erosaria D. & S.	92. Dinnet Oak Wood NNR, common at light, 1989 (J . Parkin).

Part 2 (Scarce or migratory species)

Coenonmypha tullia Mull.	91. Red Moss of Netherley.
Orthonama vittata Borkh.	Loch of Strathbeg, first record from VC93.
Lomaspilis marginata L.	91. Red Moss of Netherley and near Edzell.

Although common throughout most of Britain, these are the first recent Kincardineshire records and only the second from VCs 91-93 this century.

Colotois pennaria Hb.	Oldmeldrum: first record from VC93
Agrius convolvuli L.	93. Oldmeldrum, one, 1988.
Rhyacia simulans Hufn.	92. Drum links and Foveran, 1988 (B. Skinner). Bucksburn, three, 1988.
Apamea maillardi exulis Lefeb.	93. Oldmeldrum, one, 1987.

Part 3. New Vice-County records of microlepidoptera

Species new to Kincardineshire (91):
Bohemannia pulverosella Stt.: *Stigmella salicis* Stt.: *S. glutinosae* Stt.: *Tinea pellionella* L.: *Swammerdamia compunctella* H.& S.: *Coleophora viminetella* Zell.: *Elachista humilis* Zell.: *Bryotropha umbrosella* Zell.

Species new to S. Aberdeenshire (92):
Stigmella myrtilella Stt.: *Coleophora lithargyrinella* Zell.: *Acleris logiana* Cl.

Species new to N. Aberdeenshire (93):
Ectoedemia occultella L.: *Stigmella malella* Stt.: *Tischeria ekebladella* Bjerk.: *Argyresthia semitestacella* Curt.: *Teleiodes decorella* Haw.: *Byrotropha mundella* Doug.: *Aethes piercei* Obraz.: *Philedonides lunana* Thunb.: *Endothenia marginana* Haw.: *E. caprana* F.

Species now recorded from all three Vice Counties:
Stigmella aurella F.: *S. tityrella* Stt.: *S. microtheriella* Stt.: *Phylloporia bistrigella* Haw.: *Incurvaria pectinea* Haw.: *Bucculatrix demaryella* Dup.: *Parornix betulae* Stt.: *Phyllonorycter rajella* L.: *P. geniculella* Rag.: *Elachista regificella* Sirc.: *E. gleichenella* F.: *E. kilmunella* Stt.: *Scrobipalpa samadensis plantaginella* Stt.: *Mompha conturbatella* Hb.: *M. propinquella Stt.: Olindia schumacherana* F.: *Ancylis geminana* Don.

Hedychridium coriaceum (Hymenoptera: Chrysididae) and other less common aculeate Hymenoptera from Mitcham Common, Surrey.

In 1984, A.D. Sclater (in Morris 1984) recorded a single specimen of *Hedychridium coriaceum* which he took "at a flower" (pers. comm.) on Mitcham Common. Since then, I have frequently found *H. coriaceum* on this site and in my experience, flower visiting is not unusual although there do not seem to be published records of such habits. Specimens taken on 30.7.1988 were found at yarrow *Achilea millefolium*. In 1990, I also took this species at hogweed *Heracleum sphondylium* and cinquefoil *Potentilla reptans* and an unidentified *Leontodon* sp. (Compositae).

On Mitcham Common, *H. coriaceum* can be extremely abundant, and is often found on the bare compacted sand of footpaths where its host *Lindenius albilabris* nests. However, I have also seen it flying in numbers over very short turf. Currently *H. coriaceum* is listed as RDB 3 (Shirt 1987) and it seems likely that Mitcham Common is an important stronghold. The flight period in 1990 was 10.06 to trapping period 28.07/04.08.1990. This species is frequently taken in water traps, sometimes well away from the main host nesting sites, amongst ranker grassland. Indeed, *H. coriaceum* appears to be more abundant than either *H. roseum* or *H. ardens* on Mitcham Common.

Mitcham Common has yielded many other interesting aculeates amongst which, the discovery of *Adrena florea* (RDB 3) was particularly pleasing. so far, I have taken only two individuals of this species, both of which were at white bryony *Bryonia dioica* in 1990. Another surprise was *Hylaeus cornutus* which proved to be widespread and was often seen at hogweed. *Andrena bimaculata* was also common in 1990 and was found to be nesting along the edge of a footpath in very short turf. Nests of this species appear to be widely spaced and not obviously colonial.

The solitary wasp fauna is also very rich. One of the more surprising finds was the pompilid *Auplopus carbonarius* which was first found nesting in the root plate of a lombardy poplar which was also colonised by *Colletes*

bees and various *Ectemnius* and *Crossocerus* species. Further examples of *A. carbonarius* were taken in a water trap in tall grassland which mainly comprised *Holcus mollis* interspersed with brambles. *Nysson trilineatus* is frequently taken in water traps and is also often seen on bramble leaves. So far, I have only found its normal host *Gorytes quadrifasciatus* on a single occasion but *G. bicinctus* is present in low numbers. *Nysson dimidiatus* is also present, although its normal host *Gorytes tumidus* has not been recorded and it is possible that *Lindenius albilabris* is the alternative here. *L. albilabris* is very common on this site and I have occasionally found pairs *in cop.* on hogweed flowers. Whilst paired, the male beats its wings very rapidly in a curious fashion, so much so that I initially mistook the pair for flies.

Mitcham Common is a site which must rank very highly in a London context. So far, over 120 species of Aculeate Hymenoptera have been recorded here; on the basis of discoveries so far, it seems likely that further important records will emerge.

Acknowledgements:

I would like to thank the warden Mr M. Boyle, for permission to study and record insects on Mitcham Common. I would also like to thank Mr M. Edwards for identifying *Hylaeus cornutus* and *Andrena bimaculata* and for confirming my tentative identification of *Andrena florea*.

References:

Morris, R.K.A. (Ed.) 1984. *The Ecology of Mitcham Common*. Unpublished report to the Board of Conservators of Mitcham Common.

Shirt, D.B. (Ed.) 1987. *British Red Data Books: 2. Insects*. Nature Conservancy Council, Peterborough.

—R.K.A. Morris, 241 Commonside East, Mitcham, Surrey CR4 1HB.

An early sighting of the Small White (*Pieris rapae* L.) at Niton, Isle of Wight

Mrs Audrey Wilkinson of Niton, Isle of Wight, was sitting in her back room on 9th January 1991 working on her moth records when her attention was drawn to a flapping sound aroung the ceiling light. At first she thought that it was a moth but discovered that it was a Small White (*Pieris rapae* L.). She released it in the back porch and noticed that it had settled on a string of onions with its wings tightly closed. It remained there until 22nd January. She has some broccoli growing in the garden and I expect a larva came indoors where it pupated during the autumn and that the warmth of the room caused it to hatch.

It is however an exceptionally early sighting of this butterfly and the earliest known sighting of this species in England was on 4th January 1918 at Faversham, Kent (Robertson, *Ent.* **51**: 45).— S.A. Knill-Jones, Roundstone, 2 School Green Road, Freshwater, Isle of Wight.

THE DISTRIBUTION AND OCCURRENCE OF THE GENUS *SAPERDA* F. (COL.: LAMIIDAE) IN GREAT BRITAIN

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THREE species of the genus are native to this country of which *Saperda carcharias* is the most destructive to young trees, as is *S. populnea* to a lesser degree, but *S. scalaris* is non-injurious. All our species to a major or minor extent indulge in the peculiar habit of first incising a suitable orifice in the host tree of their choice before depositing the ova therein. The adults, too, are characteristically deciduous leaf eaters. *S. carcharias* and *S. populnea* confine their attention mainly to poplars and willows but *S. scalaris* is polyphagous.

Counties and vice-counties are represented by Brownean alphabetical symbols (Kaufmann, 1989) those italicised indicating a wide distribution (but see text *infra* relating to south Lancashire — SL); bracketed letters refer to unconfirmed records; a dagger (†) signifies an imported specimen.

Saperda carcharias L.

One of our largest Longhorns, up to 3cm long, which has become very scarce because of over-collecting. Distribution centres on three distinct zones, one north Scottish, another ranging across central and northern England, and the third covering some Home Counties, East Anglia and the Fens.

ENGLAND: BK *CB* DM† DY EK *EN ES* EY GW HT *HU LN* LS MX MY NE NM NO NY SE SL *WS* WY†

WALES: CD

SCOTLAND: AS EI EL. There is a record from Sutherland but no further data have been traced.

The Large Poplar Longhorn bites a slit in the bark of the brood tree in which it lays the ova during the summer or later. Uniquely for a Cerambycid, the egg overwinters (Ritchie, 1920; Duffy, 1953), the larva hatching in the following spring. It may be found in the sappy trunks and thicker branches of trees growing in wet woodlands and along river banks, such as aspen (the preferred pabulum), black poplar, common osier, goat willow, hybrid black poplar, Lombardy poplar, oak (unusually), *Populus dilatata, P. monilifera, P. ontariensis* and white poplar.

Abroad, the egg of *S. carcharias* is parasitised by the Eupelmidid, *Eudorus caudatus* Thom. (Chalcidoidea), but the additional use of insecticides in attempts to contain the larvae of the beetle have had an adverse effect upon the oophagon (Arru, 1970).

The larva is parasitised by these Ichneumonidae:—

Ephialtes populaeus Ratz., *Ischnoceros filiformis* Kriechb., *I. rusticus* Grav., *Neoxorides nitens* Grav., *Rhimphoctona fulvipes* Holm. and

Xylophrurus lancifer Grav. It is also attacked by the fungus, *Entomophthora grylli.*

The life cycle lasts some four years, a period taking into account the long overwintering stage of the egg. Pupation occurs in May and June. The imago eclodes after a month or so and may be found from July until October.

The metamorphosis and destructive habits of this beetle have been very fully described by Ritchie (1920), so it suffices to say that the adult not only gnaws thin girdles round the bark of the juicier twigs of the host plant, thus releasing the sap which other insects such as wasps, ants and Ladybirds enjoy, but it also eats the foliage, nibbling it, including the ribs, leaving large fimbriated holes. The young tree buds and shoots, too, are attacked and bitten into (Strojny, 1975). Feeding takes place at dusk, the females ceasing to eat after ovipositing.

In strong sunshine, the beetles fly actively and they are attracted to artificial lights; at other times they sit motionlessly among the leaves where their coloration makes them difficult to spot, or else they rest high up the trunk and branches just out of reach; only occasionally have they been found settled on old posts. Both sexes stridulate.

S. scalaris L.

One of the most beautiful of our medium-sized Longhorns, formerly regarded as a northern if not exclusively Scottish species, in many counties in which it occurs. *S. scalaris* has a scattered distribution in England, centred principally in the Midlands; its range now covers some Welsh counties and the beetle probably extends more widely than present records suggest.

ENGLAND: CB CH CU DM *DY EY* (HF) HT L NM NY SH *SL* (but see below) SN SR ST WY
WALES: CD CR MN
SCOTLAND: AM AS B DF EI EL KB KD LA NS PM PN RE S SG SS WI

Over-enthusiastic collecting last century by "artisan" Coleopterists and the subsequent urbanisation of the Manchester area and its well-known Mosses and Houghs led to the wiping out of *S. scalaris* throughout that region and as far as Derbyshire and Staffordshire (Sharp, 1908); fortunately, however, the species was re-discovered in the late 1940s by R. Wilding (Raven Report, 1950) and others (Fraser, 1950a) in neighbouring Cheshire, where it turned out to be quite common around Delamere. It is to be hoped that *scalaris* is allowed to continue breeding in what remains of the forest lands there.

The adult beetle sinks its mandibles deep into the brood tree and, after carefully inspecting its handiwork, lays one or two eggs in the hole it has excavated (Fraser, 1950b). The trunks and branches of dying trees or those past their prime are favoured; these include alder, apple, aspen, beech,

birch, bird cherry, blackthorn, crabapple, elder, elm, hawthorn, hazel, holly, hornbeam, maple, oak, including posts and palings retaining their bark, pear, poplar, rowan, sour cherry, sweet chestnut, walnut, white poplar, wild cherry and willow.

The larva is found in trees already heavily infested by the Hymenopteron, *Xiphydrus camelus* L., more particularly alders (Lesne, 1893). The former is found as well in dead trees attacked by *Clytus arietis* L., *Leiopus nebulosus* L. and other Cerambycid larvae such as *Rhagium bifasciatum* F. and *R. mordax* Deg.

The larva of *S. scalaris* is parasitised by the Ichneumonids, *Orthocentrus fulvipes* Grav. and *Xorides praecatorius* F. and the Braconid. *Meteorus tabidus* Wesm.

The larva in its final stages apparently overwinters, pupating in March or April, the perfect insect ecloding a month or so later. Metamorphosis may stretch up to three years, but on average it takes two years to complete (Klausnitzer & Sander, 1981).

The beetles are found from April onwards until August. They are diurnal, flying actively in bright sunshine. According to Demelt (1966), however, the males, which are rarely seen, are nocturnal in habit, albeit attracted to light traps; the females, on the other hand, are less active, tending to remain either on their host tree or resting on log piles. These comments are at variance with the careful observations of Fraser, quoted *in extenso* by Duffy (1953). The imagines are phytophagous, nibbling typically elongated slits along the leaf ribs of deciduous trees, beech and oak being particularly favoured.

S. scalaris, with its beautifully patterned elytra covered in golden-green pubescence on a black background, is subject to very considerable variation; over sixty forms are figured by Villiers (1978), a number of which doubtless occur in this country.

S. populnea L.

Fairly well, if locally distributed in England, but absent from the south-west peninsula and increasingly scarce in the north of the country. *S. populnea,* the Small Aspen Longhorn, is still unrecorded from Wales and Scotland.

ENGLAND: BD *BK* BX CB CU DT DY EK EN *ES EX EY* GE GW HF *HT* HU *IW* L *LN* LR MM *MY* NE NH NM NO NS *OX* SE *SH SR* ST SW SY *WK* WL WO WS *WW* WX *WY*

Before ovipositing, the beetle bites characteristically a horseshoe-shaped abrasion to cut off the sap on the bark of thin twigs and slender branches of young and healthy trees and bushes, in the inner surface of which the egg is inserted. The affected plant responds by forming a conspicuous protective gall round the incision upon which cells the hatched larva at first feeds before eating into the pith. The damage inflicted is particularly well illustrated by Demelt (1966) and Hansen (1966).

Insofar as our native Longhorns are concerned, this *Saperda* is the only gallicole responsible for such plant swellings, but its larval galls should not be confused with those occasioned by the Clearwing moth, *Aegeria,* which are smaller, less noticeable, and sometimes present in the same brood tree.

Saperda galls, sometimes only an inch apart, may be found on the following growths:— ash, aspen, the favourite pabulum, Balsam poplar, birch, Black poplar, Broad-leaved sallow, Common osier, Crack willow, Goat willow, Grey willow, hazel, Hybrid black poplar, Lombardy poplar, *Populus heterophylla, P. ontariensis,* Western balsam poplar, White poplar and White willow.

The larva is attacked by over fifty parasitic Hymenoptera and Diptera, so not surprisingly up to 98% never reach maturity (Klausnitzer & Sander, 1981); *Gecinus* spp., too, exact their toll. The long list of parasites includes:— Hymenoptera: *Apanteles hoplites* Ratz., *Ascogaster rufidens* Wesm., *Atanycolus denigrator* L., *Brachycentrus brachycentrus* Grav., *Bracon discoideus* Wesm., *B. multiarticulus* Ratz. (?), *Chelonus laevigator* Grav., *C. nigrinus* Ratz., *Cryptus viduatorius* F., *Dacnusa gedanensis* Ratz., *Deuteroxorides albitarsus* Grav., *Diadromus subtilicornis* Grav., *Echthrus populneus* Giraud., *E. nubeculatus* Grav., *E. reluctatior* L., *Entydon chalybaeus* Grav., *Ephialtes abbreviatus* Thoms., *E. extensor* L., *E. heteropus* Thoms., *E. insignis* Hab., *E. luteipes* Thoms., *E. manifestator* L., *E. messor* Grav., *E. populneus* Ratz., *E. tuberculatus* Fourcr., *Glypta ephippigera* Kriechb., *G. rostratus* Holmgr., *G. teres* Grav., *Gonicryptus analis* Grav., *Habrocytus tenuicornis* Forst., *Helcostizus brachycentrus* Grav., *Hermiteles melanarius* Grav.,*H. modestus* Grav., *Idiolispa analis* Grav., *Iphiaulax impostor* Scop., *Lycorina triangulifera* Holmgr., *Meteorus tabidus* Wesm., *Pachyneuron aeneicorne* Ratz., *Pimpla alternans* Grav., *P. capulifera* Kriechb., *Proscus suspicax* Wesm., *Pteromalus aeneocornis* Ratz., *Torymus macrocentrus* Grav., *T. quercinus* Boh., Xylophrurus lancifer Grav. The Diptera comprise *Atropidonia irrorata* Meig., *Digonochaeta setipennis* ab. *spinipennis* Meig., (?), *Dionea nitidula* Meig., *Endorus caudatus* Thoms., *Masicera sylvatica* Fln., *Pelatachina tibialis* Fln. (?), *Sarcophaga albiceps* Meig. (?). Those Diptera so marked have been queried by Emden (1950) but other parasitic flies are confirmed by Demelt (1966). The twigs also attract the attention of woodpeckers.

Transformation into the pupa takes place a year later and after overwintering the surviving imagines eclode in April and May, metamorphosis taking two years to complete.

The adult beetles are found from May until July, usually upon the parent tree whose leaves and bark they eat. They take flight on sunny days, settling on piled wood and herbage; they are also attracted to household lights.

Abroad, where it is more common, *S. populnea* is classed as an injurious insect, although in this country any material harm it causes is largely

confined to osier beds and withies. The species has long been known here and is illustrated by Martyn (1792).

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References

Arru, G.M., 1970. I trattamenti insetticidi contro le larve neonate di *Saperda carcharias* L. (Coleoptera; Cerambycidae) e gli effetti sul parassita oofago *Euderus caudatus* Thom. (Chalcidoidea: Eupelmidae), *Boll. Zool. agr. Bachic.*,-; Ser. 2, **10**: 11-19.

Aurivillius, C., 1923. Lamiidae *in* Junk, W. & Schenkling, S., *Coleopterorum Catalogus,* **74**: 468-479. Berlin.

Bílý, S. & Mehl, O., 1989. *Longhorn Beetles (Coleoptera: Cerambycidae) of Fennoscandia and Denmark.* Leiden.

Chinery, M., 1986. *Insects of Britain and Western Europe.* London.

Cooter, J. & Cribb, P.W., 1975. *A Coleopterist's Handbook.* 2nd ed. Feltham.

Curtis, J., 1829. *British Entomology,* **6**. London.

Demelt, C. von, 1966. *Die Tierwelt Deutschlands,* **52**: 2. Bockkäfer oder Cerambycidae, 1. Jena.

Dibb, J.R., 1948. *Field book of Beetles.* Hull.

Donovan, E., 1806. *The natural history of British Insects,* **11**. London.

Duffy, E.A.J., 1953. *A monograph of the immature stages of British and imported Timber Beetles (Cerambycidae).* London.

Emden, F.I. van, 1950. Dipterous parasites of Coleoptera, *Entomologist's mon. Mag.,* **86**: 182-206.

Fowler, W.W., 1890. *The Coleoptera of the British Islands,* **4**. London.

— & Donisthorpe, H.StJ.K., 1913. *Ibid.,* **6** (Supplement). London.

Fraser, M.G., 1950a. Notes on the biology of *Saperda scalaris* L., (Col.: Cerambycidae), *Entomologist's mon. Mag.,* **86**: 33-36. 4 figs.

— , 1950b. Further notes on the biology of *Saperda scalaris* L., (Col.: Cerambycidae), *Ibid.,* **86**: 73.

Freude, H., Harde, K.W. & Lohse, G.A., 1966. Die Käfer Mitteleuropas, **9**. Krefeld.

Hall, C.A., 1914. *Common British Beetles.* London.

Hansen, V., 1966. *Biller,* **22**. Traebukke Danmarks Fauna. Copenhagen. (Text in Danish.)

Harde, K.W., 1984. *A field guide in colour to Beetles.* English ed., Hammond, P.M. London.

Hepp, A., 1928. *Saperda (Anaera) carcharias* L. Frass und Färbung (Col.: Cerambycidae), *Ent. Anz.,* **8**(1): 9-10. 1 fig.

Hickin, N., 1987. *Longhorn Beetles of the British Isles.* Princes Risborough.

Janson, E.W., 1863. *British Beetles.* London.

Joly, R., 1962. Saperdes, Sésies, Tordeuses des pousses du Peuplier *in* Ennemis et malades des forêts et du bois en oeuvre, *Journées Et. Inf. CNRA Versailles,* 1961: 29-34. 5 figs.

Joy, N.H., 1976. A practical handbook of British Beetles. 2 vols. 2nd ed. Faringdon.

Kaufmann, R.R. Uhthoff-, 1947. A contribution to the history of the Longicorn Coleoptera of Cheshire, *N. W. Nat.,* Mar.-June: 95-101.

— , 1948. Notes on the distribution of the British Longicorn Coleoptera, *Entomologist's mon. Mag.,* **84**: 66-85.

— , 1948. An annotated list of the Scottish Longicorn Coleoptera, *Proc. R. Phys. Soc. Edin.* **23**(2): 83-94.
— , 1989. Browne *versus* Watson: Round Two, *Entomologist's Rec. J. Var.,* **101**: 61-63.
Klausnitzer, B. & Sander, F., 1981. *Die Bockkäfer Mitteleuropas.* Wittenberg Lutherstadt.
Kloet. G.S. & Hincks, W.D., 1977. *Check list of British Insects,* **11**(3), Strepsiptera and Coleoptera: 71. London.
Lesne, P., 1893. Moeurs du *Saperda scalaris* et du *Leiopus nebulosus, Ann. soc. ent. Fr.,* **62**: 331.
Linssen, E.F., 1959. *Beetles of the British Isles,* **2**. London.
Lyneborg, L., 1977. *Beetles in colour.* English ed., Vevers, G. Poole.
Martyn, T., 1792. *The English Entomologist,* tab. 24, figs. 8-9. London.
Paulian, R. & Villiers, A., 1941. Les larves des Cerambycidae francais (Coleoptera), *Rev. f r. Ent.,* **8**(4): 202-217.
Planet, L-M., 1924. *Histoire naturelle des Longicornes de France.* Paris.
Raven Report, 1950. *Raven Ent. Nat. Hist. Soc.,* 1949.
Ritchie, W., 1920. The structure, bionomics and economic importance of *Saperda carcharias* L. "the Large Poplar Longhorn". *Ann. appl. Biol.,* **7**(2-3): 299-343. 3 plates, 25 figs.
Scherer, G., 1986. *Beetles of Britain and Europe,* pl. 57. Longman Group, Harlow.
Sharp, W.E., 1908. The Coleoptera of Lancashire and Cheshire, 31st. *Ann. Rep. Proc. Lancs. Ches. Ent. Soc.,* 1907: 1-75.
Stephens, J.F., 1831. Illustrations of British Entomology, *Mandibulata,* **4**. London.
— , 1839. *A manual of British Coleoptera.* London.
Strojny, W., 1975. Feeding of the imago of *Saperda carcharias* (L.) (Coleoptera: Cerambycidae) on bark of *Populus tremulus* L. sprouts, *Polskie Pismo entom.,* **45**: 625-632. 9 plates. (Text in Polish.)
Villiers, A., 1978. *Faune des Coléoptères de France,* **1**. Cerambycidae. Paris.
Winkler, A., 1929. *Catalogus Coleopterorum regionis palaearcticae,* **10**: 1214-1216. Vienna.
Zahradník, J. & Chvála, M., 1989. *Insects.* English ed., Whalley, P., London.

Larva of *Celastrina argiolus* L., Holly Blue (Lep.: Lycaenidae) feeding on sallow

On 24th August 1989 I beat a final instar larva of *Celastrina argiolus* out of a common sallow tree (*Salix cinerea*) which had no ivy growing on it. In captivity it fed from the upper side of the sallow leaves and left just a network of veins before moving on to another leaf. The larva had very pronounced red dorsal and lateral stripes. The fully fed larva and pupa were unusually small. A very small female butterfly emerged on 8th May 1990 but failed to expand its wings properly. I was unable to measure the wingspan and so I measured the body length which was 8mm compared with 11mm for a normal female.

The larva of *argiolus* has never before been recorded as feeding on sallow. It does however appear to be an unsuitable foodplant for normal development.— Dr B.P. HENWOOD, 4 The Paddocks, Abbotskerswell, Newton Abbot, Devon.

A COMPARISON OF LIGHT TRAP CATCHES USING TWO TYPES OF DISCHARGE LAMP

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Introduction

THOSE of us who regularly record moths at light traps with mercury-vapour (m.v.) lamps have been alarmed to discover that the traditional, non-fluorescent m.v. lamp is no longer available. With only one of these lamps still in my possession, and all attempts to secure others meeting with failure, I decided to mount a preliminary experiment to try to compare the catches of macrolepidoptera (including Pyralidae) attracted to a Robinson Trap fitted with either the traditional GEC 125W MB/U mercury vapour lamp, or the currently available substitute sold by Watkins and Doncaster, the Wotan 125W HQL halogen lamp.

Design of any comparative experiment such as this is fraught with difficulties, given the poorly defined effects of both trap site and weather conditions on nightly catches and the fact that the attractiveness of a particular lamp for moths declines with its age and length of "service". Each lamp was used 15 times over a period of 30 nights. The trap was placed in exactly the same position each night, and operated from dusk to dawn. Grass around the trap was regularly mown, and the site examined at least twice nightly to incorporate all those individuals not actually in the trap. At dawn, the trap was transferred to a cool room, for analysis later in the day.

By way of a parallel experiment, my father, A.J. Dewick, finding that 400 watt MB/U mercury vapour lamps he has used since the 1940s were no longer available, compared the performance of his sole surviving lamp with that of the Phillips HP1-T using a similar alternating regime to that described above, but during the month of October. His trap design is very different to my own, being a large purpose-built brick building with the light mounted on the roof, some nine feet above ground level.

Results — 125W lamps

Each of the lamps has a distinctive appearance when alight. The MB/U light is harshly blue, whereas the HQL has a more pinkish hue, due to the fluorescent coating, and appears less bright than the MB/U. The expectation, in line with "received wisdom", was that the MB/U would perform significantly better than the HQL. Confounding expectation, the results did not clearly fit into the expected pattern.

The total number of species caught at each lamp was very similar (Table 1), with the HQL fractionally ahead. The mean number of species per night was, however, virtually identical. The total number of individuals caught was, in contrast, nearly 10% higher with the HQL lamp (1038 individuals compared with 951).

Table 1: Comparison of the number of species and number of individuals trapped in May and early June 1990 using either the GEC MB/U or Wotan HQLlamps. Both rated at 125W.

Date	*Number of Species*		*Number of Individuals*	
	MB/U	**HQL**	**MB/U**	**HQL**
May 3	38	—	94	—
4	—	34	—	98
5	—	33	—	96
6	37	—	103	—
7	43	—	109	—
8	—	43	—	120
9	34	—	75	—
10	—	29	—	61
11	—	12	—	20
12	16	—	22	—
13	22	—	39	—
14	—	19	—	28
15	33	—	63	—
16	—	38	—	66
17	—	35	—	69
18	26	—	53	—
19	17	—	32	—
20	—	—	—	—
21	—	28	—	48
22	23	—	36	—
23	—	13	—	23
24	—	39	—	86
25	9	—	13	—
26	13	—	16	—
27	—	8	—	9
28	30	—	59	—
29	—	29	—	61
30	—	48	—	129
31	50	—	146	—
June 1	41	—	91	—
2	—	39	—	124
Total	**109**	**113**	**951**	**1038**
Mean/Night	**7.27**	**7.53**	**63**	**69**

Table 2: Comparison of the number of species and number of individuals trapped in October 1990 using either the Phillips MB/U or Phillips HP1/T lamps. Both rated at 400W.

Date	*Number of Species*		*Number of Individuals*	
	MB/U	**HP1-T**	**MB/U**	**HP1-T**
Oct. 1	25	—	261	—
2	—	29	—	287
3	20	—	172	—
4	—	10	—	41
5	17	—	49	—
6	—	27	—	186
7	18	—	68	—
8	—	10	—	17
9	17	—	59	—
10	—	28	—	223
11	30	—	208	—
12	—	29	—	275
13	29	—	189	—
14	—	34	—	339
15	38	—	246	—
16	—	27	—	116
17	31	—	209	—
18	—	36	—	379
19	34	—	269	—
20	—	33	—	291
21	24	—	119	—
22	—	19	—	55
23	19	—	59	—
24	—	31	—	175
25	22	—	117	—
26	—	16	—	56
27	13	—	41	—
28	—	20	—	47
29	16	—	33	—
30	—	13	—	37
Total	**58**	**63**	**2099**	**2524**
Mean/night	**3.86**	**4.2**	**140**	**168**

Differences between individual species was more difficult to discern. Certainly some species were recorded at MB/U and not HQL, and vice-versa. The numbers involved were rather small and it would not be prudent to draw conclusions on this sort of sample size. A general impression was that the Noctuidae in particular came in greater numbers to HQL than to

MB/U — the ratio for the genus *Agrotis,* for example, being 107/153 and that for *Orthosia* 165/173.

Throughout the test period there was very little in the way of immigration, an activity that could seriously distort this type of comparison. A few *Autographa gamma* were taken throughout the recording period, whilst two *Agrotis ipsilon* and a single *Orthonama obstipata* were taken on the last night.

Results — 400W lamps

The Phillips catalogue states that the HP1-T contains metal halides to "subdue the mercury spectrum". The assumption again was that this type of lamp would be far less effective than the MB/U type. Both lamps are made of clear glass. The MB/U emits an intensely blue glow, entirely lacking in the HP1-T.

Once again, our fears appeared to be groundless with the mean number of species taken with the HP1-T being slightly higher than with the MB/U (Table 2). The total number of individuals was considerably higher (2524 with HP1-T against 2099 with MB/UL).

Table 3: Comparison of total number of individuals of all species noted in both tests (125W in May/June and 400W in October).

Species	*May/June, 125W*		*October 400W*	
	MB/U	**HQL**	**MB/U**	**HP1-T**
Eudonia angustea	9	5	20	10
Timandra griseata	9	14	1	0
Orthonama obstipata	0	1	2	0
Agrotis segetum	5	9	42	67
A. ipsilon	0	2	34	42
A. puta	49	68	29	45
Noctua pronuba	4	4	301	385
Diarsia rubi	6	7	1	0
Xestia c-nigrum	6	16	338	449
Discestra trifolii	18	18	0	1
Mamestra brassicae	0	1	1	0
Lacanobia oleracea	7	13	1	3
Mythimna pallens	14	15	6	6
Phlogophora meticulosa	8	7	135	179
Hoplodrina ambigua	3	7	8	3
Caradrina clavipalpis	0	1	1	2
Autographa gamma	9	6	57	117
Hypena proboscidalis	0	1	11	9
Total	**147**	**195**	**988**	**1318**

Generally the results of this test are very similar to those conducted with the 125W lamps (Table 1). Most species were taken in higher numbers with the HP1-T, including *Noctua pronuba* with a ratio of 385/301, *Agrochola circellaris* (82/53) and *Aporophyla lutulenta* (11/6). The genus *Agrotis* produced a ratio of 154/105, even greater than with the 125W lamp. A few species came in greater numbers to the MB/U lamp, and these included *Larentia clavaria* (11/6) and *Rhizedra lutosa* (96/80). Numbers of *Autographa gamma* must be treated with caution, as October produced a few nights of heavy immigration.

Conclusions

The size of the sample, in terms of number of species and individuals noted, is rather small and it would be unwise to draw too many conclusions from these data. It is worth noting that the gloomy comments heard about the poor performance of HQL lamps in comparison with MB/U are not borne out by this limited investigation — in fact, the reverse is suggested! Table 3 shows the relative distribution of selected species in both the 125 and 400 W trials.

Clearly much still remains to be learned about the various lamps available and their attractiveness to moths.

Further observations on *Aderus populneus* (Creutzer) (Col.: Aderidae)

In a pertinent and perceptive paper (*Ent. Rec.* **93**: 208-209) Mr A.A. Allen questioned the remarkably diverse (in spider's webs, ash seeds, manure heaps and houses) range of situations in which *Aderus populneus* (Creutzer) has been observed. The purpose of this contribution is to throw further light on this topic, although conclusions must await further investigation.

Mr Allen's claim to establish a clearer understanding of the biology and periodicity of this rather rare species can now be amplified somewhat. I can speak only from knowledge of the species in Worcestershire, which provides a northern extension of its southern British range.

This species is essentially xylophagous (oak), overwinters as a quiescent imagine. The thermal environment in winter appears to be crucial to survival.

It appears to me at the moment that *A. populneus* is one of a fastidious and sensitive group of xylophagous beetles which only rarely encounter the sum total of conditions required for successful colonisation. A number of these conditions are met most often in closed-canopy forest, and the omission of this species from the list of those indicating that relict habitat (Harding, P.T., Rose, F. 1986, *Pasture Woodlands in Lowland Britain.* ITE) may require review.

My experiences in Worcestershire show that successful populations of *Aderus populneus* may be limited to isolated trees which they may make no attempt to leave, utilising the tree for decades. The physical character of the dead wood appears to be important; adults overwinter in contraction-spaces between the annual rings of dry, delignified, papery, soft heartwood. I can throw no light on larval biology, although I am aware of winter populations of imagines numbered in hundreds, and there can be little doubt that this too is the larval habitat.

The habitat is supported by Mr D. Nash's recent finding (*Ent. Rec.* **102**: 186) and a number of those cited by Mr Allen (*op. cit.).* It is emphasised that the beetles do not hibernate in the strict sense, but that they merely become torpid. The thermal threshold for winter activity is at or about 9°C. when males will crawl within a tree, vibrating their antennae as those of *Aderus oculatus* (Paykull) do in summer.

Amongst the earlier records are some suggesting that *A. populneus* is synanthropic; if the species overwinters in buildings it may simply imply that populations very close at hand in the wild were subject to an unfavourable thermal regime in winter. One can look profitably here at other families of beetles. Amongst *Mycetophagus* some penetrate deep into the heartwood of trees to locate suitable wintering sites, and one British species is sometimes located in or near human habitation. Amongst *Cryptophagus, C. scutellatus* Newman is occasionally synanthropic and *C. scanicus* (Linnaeus) appears equally at home in buildings and trees. The thermal threshold for winter activity of *C. scutellatus* appears to be more or less identical with that quoted above for *A. populneus. Phloiophilus edwardsi* Stephens (which I have noted cohabiting with *A. populneus*) seems prevented from crossing this environmental threshold, despite the probably major effects of "wildwood" clearance on its behaviour. There is still much to discover about *A. populneus,* a species which appears to have high conservation value throughout all Europe.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcs WR10 3EP.

Early hibernators in 1991

When a new year begins, I always think the first moth to appear will be *Apocheima pilosaria,* and in past years this has often been true. In 1991 however, a female *Conistra vaccinii* was found on 11th January in a lighted shop window. Nothing further was seen until 11th February when I was waiting for a train at Gatwick Airport station. It was 17.15, the temperature was below zero and snow was everywhere. A moth flew by and, as luck would have it, settled on a colleague's coat. Although unprepared for sub-zero entomology, the moth was secured, a polythene bag doing duty as a pill-box. On examining the capture, in warmer surroundings at home, I was surprised to find that it was a fine male *Lithophane ornitopus* Hufn. What was it doing out on such an unsuitable night?— D. DEY, 26 Manor Avenue, Hassocks, West Sussex BN6 8NG.

MICROLEPIDOPTERA REVIEW OF THE YEAR 1989

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THIS IS the tenth such review which I have endeavoured to produce, so as we end the 1980s it seems worth taking stock of the process. The style of the review has evolved and continues to do so. Its purpose is to present a paper which will be of use to those in the future who wish to research the occurrence of a particular species or family, or else extract records for a given county or vice-county. It should provide a quick key to the literature. Whilst not including all records, the intention is that the majority will be listed, but others such as complete lists from a locality will be referred to if there are too many to reproduce.

Localities are simple assigned their vice-county numbers for the sake of brevity; these are described in Heath (1976) or Dandy (1969). A great many records included are new vice-county or county records, but it has not been the practice to specify this. Where there has been a recently published county list it may be easy to ascertain whether or not a record is new; however, in remote or little worked counties such a judgment is well nigh impossible — perhaps in due course there may be published an atlas of British microlepidoptera which would make a base line from which additions could be made. An unpublished and still incomplete atlas is already held by A.M. Emmet as editor of *The Moths & Butterflies of Great Britain & Ireland.* This consists of maps in preparation for future volumes and extensively updated versions of those that have already appeared. This information is available on request, but in many instances the data is restricted to the name of the recorder to whom further enquiries would need to be directed.

Records sent to me are sorted in a standard form, and to them are added those gleaned from the journals. A duplicated list is then produced containing all these records, usually by October of the following year. Recorders then have the chance to correct such mistakes as may have crept in, and omissions are made good. The less interesting records are then edited out for the sake of saving space, and a narrative is added. In future I hope to enlist the help of one or two others for these latter tasks. This year thanks are due to Maitland Emmet for his comments.

The 1989 season

At last! After a sequence of poor summers 1989 produced a long hot summer following a very mild winter. Despite this the list which follows is shorter than usual, and only two species are added to the British list. Further time is needed to explain such a result, but the hot season made it difficult to predict when a species could be found either as a larva or on the wing. Since many species are best searched for, this difficulty of timing

made life harder for microlepidopterists than for moth-trapping macrolepidopterists.

The first species new to Britain was detected early in the year when mines of *Phyllonorycter leucographella* (Zeller) were found in Essex. This species has been extending its range northwards from the Mediterranean during the last 20 years and must have reached our shores only a few years before it was discovered. For the most part it was found still to be confined to south Essex although in some parts it had achieved a high density. The other addition came at the close of the season when on the night of 22nd October *Etiella zinckenella* (Treitschke) was taken at Bradwell-on-Sea, Essex. This is a cosmopolitan pest which only occasionally reaches our latitudes and it is not likely to become established if our climate remains as it has been.

Migration has been one of the more interesting features of the year. Microlepidoptera included in the account "The immigration of Lepidoptera into the British Isles in 1989" *Ent. Rec.* **102**: 217 occupy a whole page and include some considerable rarities, but besides this species not normally thought of as migrants have shown their wandering tendencies: notable among them being *Yponomeuta rorrella* (Hübn.), *Y. evonymella* (Hübn.) and *Ethmia terminella* Fletch. Whether *Eucosma metzneriana* (Treits.) and *Lobesia botrana* (D. & S.) belong to this category is not yet certain, but records of them are becoming more numerous.

Discovery of the biology of species resident in Britain is always of interest and it is good to see that *Cataplectica farreni* (Wals.) and *Cydia illutana* (H.-S.) have both been found as larvae. New foodplants for *Coleophora ramosella* Zell. and other less rare species are of great interest.

As usual I try to draw attention to other articles and books which have appeared during the year in question, and this is extended until the time of going to press. A list of lepidoptera from north Devon by A. Spalding appeared in *Ent. Gaz.* **40**: 303; Lepidoptera from Ireland were listed in *Ent. Gaz.* **40**: 307-311 (Langmaid, 1986) and *Ent. Gaz.* **42**: 15-29 (Heckford & Langmaid, 1989). Lepidoptera from Colonsay and Oronsay are listed in *Ent. Rec.* **102**: 281-284 (Harper & Christie, 1989). Species of interest which were exhibited at the BENHS Annual Exhibition are listed in *Br. J. ent. nat. hist.* **3**: 69-74 together with full colour illustrations of *Phyllonorycter leucographella, Mompha subdivisella, Sclerocona acutellus* and dark and light forms of *Elachista albifrontella.*

County lists continue to appear and *Butterflies and moths of Yorkshire* by S.L. Sutton & H.E. Beaumont is quite excellent, a model for any county list and a mine of local information. *Moths and Butterflies in Cornwall* by J.L. Gregory is unusual in that it is largely an account of the author's records, but contains little hard data concerning localities, dates and recorders.

Of wider interest *Nordeuropas Prydvinger* by Eivind Palm is a Danish book on the Oecophoridae of northern Europe with lavish illustrations.

Nepticulidae and Opostegidae of north-west Europe by R. Johansson et al. in the *Fauna Entomologica Scandinavica* series is a superb book, with wonderful colour illustrations. "De Danske Viklere" by Knud Larsen & Flemming Vilhelmsen has been published in eight parts over four years in the Danish journal *Lepidoptera*. It contains 16 colour plates made from photographs (actual size) and covers all the Tortricidae of Denmark; genitalia sketches of difficult groups are included. Finally, my attention has been drawn to an interesting paper by M. Hull on the *Eudonia* species (Pyralidae); differences in the female genitalia are shown, using a technique which avoids the distortion of loops in the ductus bursa; this is published in *Ann. Rep. & Proc. Lancs & Ches. ent. Soc. No.* **111:** 101-108 and correction No. **112**: 101-102.

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Systematic list

ERIOCRANIIDAE

7 *Eriocrania chrysolepidella* (Zell.) — Unhill Wood (22) two females, 12.iv.89 — BRB

10 *E. salopiella* (Staint.) — Uragh Wood, south Kerry (H1) 16.iv.89 — KGMB

NEPTICULIDAE

20 *Etainia decentella* (Herr.-Schäff.) — Goring (23) 16.vi.89 — MFVC

23 *Ectoedemia argyropeza* (Zell.) — Uragh Wood (H1) mines, male bred 16.iv.89 — KGMB

29 *E. atricollis* (Staint.) — Kilkenny City (H11) mines, 23.ix.89 — KGMB

31 *E. rubivora* (Wocke) — Salsey Forest (32) 17.x.89 — AME

49 *Trifurcula eurema* (Tutt) — Colwick (56) vacated mine, 2.vii.89 —ASB

61 *Stigmella serrella* (Staint.) — Salen, Ardnam

107 *S. regiella* (Herr.-Schäff.) — Dinton (8) tenanted mines 15.x.89 — SMP

115 *S. alnetella* (Staint.) — Colwick (56) mines locally common 4.ix.89 — ASB

107 *S. regiella* (Herr.-Schäff.) — Dinton (8) tenanted mines 15.x.89 — SMP
115 *S. alnetella* (Staint.) — Colwick (56) mines locally common 4.ix.89 — ASB
117 *S. confusella* (Wood) — Blackmore Copse (8) vacated mine 13.vii.89 — SMP
118 *S. acetosae* (Staint.) — Borth (46) mines 15.x.82 — MWH. *Ent. Rec.* **102**: 243

OPOSTEGIDAE
119 *Opostega salaciella* (Treits.) — Colonsay (102) — MRY & MWH
121 *O. crepusculella* Zell. — High Woods (19) 20.vii.89, eight — BG; Pollardstown Fen (H19) 22.vii.89 — KGMB

TISCHERIIDAE
127 *Tischeria angusticolella* (Dup.) — Salsey Forest (32) 17.x.89 — AME

INCURVARIIDAE
131 *Incurvaria oehlmanniella* (Hübn.) — Groby (55) 14.v. - 10.vi.89 fairly common — HEB
132 *I. praelatella* (D. & S.) — Pollardstown Fen (H19) 22.vi.89 — KGMB
135 *Lampronia luzella* (Hübn.) — Ballea (H4) 7.v.89 — KGMB
138 *L. fuscatella* (Tengst.) — Notes on the species and its distribution — KPB, *Ent. Rec.* **101**: 249-253
145 *Nemophora minimella* (D. & S.) — Leckford (12) two on Scabious heads 29.vii.89 — DHS, MJS and PHS; Westmuir Common (90) 15.vii.89 — KPB

HELIOZELIDAE
154 *Heliozela sericiella* (Haw.) — Groby (55) 28.v.89 — HEB
156 *H. resplendella* (Staint.) — Colonsay (102) — MRY and MWH

TINEIDAE
200 *Psychoides filicivora* (Meyr.) — Oxford (23) 11.viii.86, most easterly inland record — PHS; Cardiff (41) 15.vi.89 (Rothamsted trap) — EFH
203 *Infurcitinea argentimaculella* (Staint.) — Leckford (12) larval tubes 27.iii.89 — DHS and MJS
238 *Niditinea piercella* (Bentinck) — Holford (5) bred 7.vi.89 from nest box — DJLA

GRACILLARIIDAE
284 *Caloptilia rufipennella* (Hübn.) — Eynesbury (31) 18.ix.89 — BD; Colwick (56) vacated mines and cones 23.x.89 — ASB
287 *C. robustella* (Jäckh) — Salsey Forest (32) 17.x.89 — AME

290 *C. semifascia* (Haw.) — Blackmore Copse (8) 23.ix.89 — SMP
292 *C. leucapennella* (Steph.) — Ross Wood (86) 2.ix.89 — KPB
299 *Parectopa ononidis* (Zell.) — Middleton Down (8) 20.vii.89 — SMP
301 *Parornix betulae* (Staint.) — Groby (55) 10.vi.89 — HEB
316 *Phyllonorycter roboris* (Zell.) — Devil's Glen (H20) mines 13.viii.89 — KGMB
317 *P. heegeriella* (Zell.) — Groby (55) 14 — 28.v.89 — HEB
330 *P. cerasicolella* (Herr.-Schäff.) — Salsey Forest (32) 17.x.89 — AME
332a *P. leucographella* (Zell.) — Essex, many localities (18) & (19) and Gravesend (16) — AME & others. *Ent. Rec.* **101**: 101-194 & **101**: 143. **New to Britain.**
336 *P. dubitella* (Herr.-Schäff.) — Llay (50) bred *Salix* '89 — BF per HNM
338 *P. cavella* (Zell.) — Llanrwst (50) '89 — HNM; Caergwrle (51) — M. Newstead per HNM
348 *P. quinqueguttella* (Staint.) — Colonsay (102) — MRY and MWH
351 *P. lautella* (Zell.) — Cong (H26) mines 5.xi.89 — KGMB
354 *P. emberizaepenella* (Bouch.) — Kirkinner (74) 22.vi.89 — EFH
358 *P. froelichiella* (Zell.) — Salsey Forest (32) 17.x.89 — AME
363 *P. platanoidella* (Joannis) — Salsey Forest (32) 17.x. 89 — AME; Stoke Bardolph (56) mines 20.x.89 — ASB
365 *P. comparella* (Dup.) — Merrow Common (17) 27.x.89 — KGMB

CHOREUTIDAE

386 *Tebenna micalis* (Mann) — Confirmation of this species as British and of its sister species *T. bjerkandrella* (Thunb.) as doubtfully British, together with full descriptions etc. — RJH. *Ent. Gaz.* **41**: 17-20.
387 *Prochoreutis sehestediana* (Fabr.) — Woodbastwick NNR (27) larvae on *Scutellaria* 2.vii.89 — APF
388 *P. myellerana* (Fabr.) — Woodbastwick NNR (27) larvae on *Scutellaria* 2.vii.89 — APF

GLYPHIPTERIGIDAE

393 *Glyphipterix equitella* (Scop.) — Binsley, Oxford (23) bred from *Sedium acre* — PHS and MJS

YPONOMEUTIDAE

407 *Argyresthia dilectella* (Zell.) — Gresford (50) 17.viii.89 — B. Formstone per HNM
416 *A. glaucinella* (Zell.) — Leckford (12) workings in oak 8.iv.89, moths not bred — DHS and JRL; East Sutherland (107) and Perthshire (88), larvae in bark of birch (*Betula*) — KPB. *Ent. Gaz.* **40**: 295-6
424 *Yponomeuta evonymella* (Hübn.) — A discussion of its status — AME. *Ent. Rec.* **102**: 65-67

428 *Yponomeuta rorrella* (Hübn.) — Fingringhoe Wick NR 3.viii.88, five; also Donyland Woods, one, and Alresford Pits (19), two — BG; Little Paxton Gravel Pits (31) 7.viii.89, Bankside LNR (31) 12.vii.89, Pingle Wood (31) 29.viii.89 — BD; Hampstead (21) 19, 20, 24 and 28.vii.89 — RAS; Winchester (11) one — DHS; Winchester (12) two 5.viii.89 — DHS and PHS; Oxford (23) 21.vii.89 and three 29.vii.89; Faringdon (22) 24.vii.89 — PHS; Grays (18) two 28.vii.89, Heyshott (13) two 4.viii.89 — DJLA; Fernham (23) '89 — S. Nash; A discussion of its status — AME. *Ent. Rec.* **102**: 67-69

431 *Y. sedella* (Treits.) — High Woods (19) 7.viii.89 — BG

439 *Swammerdamia compunctella* Herr.Schäff. — Kirkinner (74) 17.vi.89 — EFH

450 *Scythropia crataegella* (Linn.) — Gresford (50) 29.vi.89 — B. Formstone per HNM; Cardiff (41) vi. early vii. and late viii.89 (Rothamsted trap) — EFH

452 *Ypsolopha nemorella* (Linn.) — Colonsay (102) — MRY and MWH

458 *Y. alpella* (D. & S.) — Swynnerton (39) 24.viii.89 — RGW

461 *Y. ustella* (Clerck) — Bryn-y-Maen (50) bred from *Betula* — HNM

465 *Plutella porrectella* (Linn.) — High Woods (19) vii.89, five, ix.89, two — BG

468 *Rhigognostis incarnatella* (Steud.) — Balrobbie Farm 19.v.89 — KPB; Kilcolman (H5) 28.viii.89 — KGMB

EPERMENIIDAE

479 *Cataplectica farreni* (Wals.) — Swyncombe Downs (22) bred from seedheads of *Pastinaca* collected 20.viii.88, emerged vi.89 — PHS

COLEOPHORIDAE

487 *Metriotes lutarea* (Haw.) — High Woods, Colchester (19) 7.v.89 — BG

490 *Coleophora lutipennella* (Zell.) — Salsey Forest (32) 17.x.89 — AME

491 *C. gryphipennella* (Hübn.) — Great Wenham (25) 24.x.89 — AME

492 *C. flavipennella* (Dup.) — Salsey Forest (32) 17.x.89 — AME

493 *C. serratella* (Linn.) — Salsey Forest (32) 17.x.89 — AME

494 *C. coracipennella* (Hübn.) — Faringdon (22) bred *Prunus spinosa* — MFVC

497 *C. badiipennella* (Dup.) — St Ives (31) 25.x.89 — AME

498 *C. alnifoliae* Barasch — Mortimer West End (22) bred 20.v.89 from case found on *Alnus* 15.v.88 — BRB

500 *C. hydrolapathella* Hering — Walberswick NNR (25) larvae common on *Rumex hydrolapathum* 18.ix.89 — APF

502 *C. trigeminella* Fuchs — Cumnor (22) 20.vi.89, Goring (23) 16.vi.89 — MFVC

503 *C. fuscocuprella* Herr.-Schäff. — Salsey Forest (32) 17.x.89 — AME

504 *C. viminetella* Zell. — Salsey Forest (32) 17.x.89 — AME; Colwick (56) cases v.-vi.89 — ASB
515 *C. albitarsella* Zell. — Bentley (25) 24.x.89; St Ives (31) 25.x.89 — AME
517 *C. frischella* (Linn.) — Conwy (49), Wenlli (50) 1989 — HNM
518 *C. mayrella* (Hübn.) — Castlecraig (78) 13.vi.89 — KPB
522 *C. lineolea* (Haw.) — Graig Fawr, near Prestatyn (51) — HNM
524 *C. lithargyrinella* (Zell.) — Near Nettlebed (23) bred from *Stellaria* — DHS and PHS; Bentley (25) 24.x.89 — AME
525 *C. solitariella* Zell. — Bentley (25) 24.x.89 — AME
530 *C. lixella* Zell. — Talisker (104) 22, 24.vi.83 —MWH. *Ent. Rec.* **102**: 244
532 *C. albidella* (D. & S.) — Woodwalton Fen (31) 2.vi.89 — AME
533 *C. anatipennella* (Hübn.) — Morkery Wood (53) 19.ix.89 — AME
535 *C. ardeaepennella* Scott — East Wretham (28) 15.x.89 — AME
537 *C. palliatella* (Zinck.) — Woodwalton Fen (31) 3.vi.89 — AME
544 *C. albicosta* (Haw.) — Barton Mills (26) 21.v.89 — AME
545 *C. saturatella* Staint. — Donyland Woods (19) 12.vii.88 — BG
547 *C. discordella* Zell. — Salsey Forest (32) 17.x.89; Twyford Wood (53) 19.ix.89 — AME
548 *C. niveicostella* Zell. — Salisbury Plain (8) 25.vi.89 — SMP and JRL
552 *C. lassella* Staud. — Douglas River (H4) 22.viii.89 — KGMB
555 *C. follicularis* Vallot — Salsey Forest (32) 17.x.89; Woodwalton Fen (31) 3.vi.89 — AME
558 *C. ramosella* Zell. — Larvae on *Bellis perennis* in the Burren (H5) 1.vi.89 — JRL, RJH & DJLA
560 *C. paripennella* Zell. — Salsey Forest (32) 17.x.89 — AME
563 *C. argentula* (Steph.) — Borras, near Wrexham (50) cases ix.89 — B. Formstone per HNM; St Ives (31) 25.x.89, Castle Bytham (53) 19.ix.89; East Wretham (28) 15.x.89 — AME
565 *C. saxicolella* (Dup.) — Timoleague (H5) 30.vii.89 — KGMB
569 *C. squamosella* Staint. — Boscombe Down (8) cases on *Erigeron* 1988/89 — SMP
570 *C. pappiferella* Hofm. — Correl Glen, Fermanagh (H33) two, 6.vi.70 in Heal collection, National Museum of Ireland — KGMB
577 *C. artemisicolella* Bruand — Salsey Forest (32) 17.x.89, St Ives (31) 25.x.89 — AME
582 *C. glaucicolella* Wood — Bentley Wood (8) cases 6.x.89 — SMP
583 *C. cratipennella* Clem. — Pollardstown Fen (H19) 22.vi.89 — KGMB
587 *C. caespititiella* Zell. — Groby (55) 10.vi.89 fairly common — HEB

ELACHISTIDAE

594 *Elachista gleichenella* (Fabr.) — Pydew (49) vi.89 — HNM

595 *E. biatomella* (Staint.) — Chawbridge Bank NR (22) 17.v. & 19.vii.89 — BRB
598 *E. kilmunella* Staint. — Gorsmaenllwyd, near Brenig (50) vii.89 — HNM
599 *E. alpinella* Staint. — Gorsmaenllwud, near Brenig (50) viii.89 — HNM
601 *E. albifrontella* (Hübn.) — Unusual markings from Barra (110) — MRY
614 *E. triseriatella* Staint. — Great Orme (49); Graig Fawr (51) — HNM; St Abbs (81) 2.vii.88, **New to Scotland** — KPB
620 *E. gangabella* Zell. — Salsey Forest (32) 17.x.89, Bures St Mary (26) 26.ix.89 — AME
625 *Biselachista cinereopunctella* (Haw.) — Graig, near Tremerchion (50) bred — HNM
630 *B. albidella* (Nylander) — Gorsmaenllwyd, near Brenig (50) — HNM

OECOPHORIDAE

646 *Telechrysis tripuncta* (Haw.) — Friday Woods (19) 18.vi.89 — BG
653 *Alplota palpella* (Haw.) — Scotney Castle (16) 2.viii.89 — JMCH. *Ent. Rec.* **102**: 4
655 *Pleurota aristella* (Linn.) — Jersey (113) vi.89 — MWH *Brit. J. Ent. Nat. Hist.* **3**: 71
656 *Parocystola acroxantha* (Walk.) — St Ives (1) 11.vii.89 — Roland Rogers
686 *Exaeretia ciniflonella* (L. & Z.) — Crathie (92) 15.x.86 — MWH. *Ent. Rec.* **102**: 244
698 *Agonopterix ciliella* (Staint.)—Saffron Walden (19) 6.viii.89—AME
699 *A. bipunctosa* (Curt.) — Seven Barrows, Lambourn (22) ex 1. on *Serratula* — MFVC; Salisbury Plain (8) dead larva on *Serratula* 25.vi.89 — SMP & JRL
701 *A. ocellana* (Fabr.) — Fingringhoe Wick NR (19) 27.iii.89 — BG
706 *A. nervosa* (Haw.) — Chawridge Bank NR (22) 17, 18.vi.89, bred from *Genista tinctoria* — BRB
717 *Ethmia terminella* Fletch. — Fingringhoe Wick NR (19) 7.vii.89 — BG. *Ent. Rec.* **102**: 69
720 *E. bipunctella* (Fabr.) — Eastbourne (14) 26.v.89 — MP

GELECHIIDAE

724 *Metzneria lappella* (Linn.) — Gresford (50) 20.vi.89 — B. Formstone per HNM
727a *M. aprilella* (Herr.-Schäff.) — Churchill (6) bred 7.vi.89 — DJLA
733 *Eulamprotes wilkella* (Linn.) — Gresford (50) 10.vii.89 — B. Formstone per HNM
736 *Monochroa lucidella* (Steph.) — Crymlyn Bog (41) 23.vi.89 — RGW

747 *Chrysoesthia sexguttella* (Thunb.) — Glan Conwy (50) bred 23.vi.89 — HNM

752 *Aristotelia ericinella* (Zell.) — Westmuir Common (90) 15.vii.89 — KPB

767 *Teleiodes decorella* (Haw.) — Minera (50) 1988 — B. Formstone per HNM

771 *T. alburnella* (Zell.) — Dolgarrog Station (50) vii.89 — HNM; Dinton (8) 24.vii.89 — SMP

773 *T. paripunctella* (Thunb.) — Bettisfield (50) 1.vi.88 — M. Newstead per HNM

796 *Aroga velocella* (Zell.) — Leckford (12) 22.vii.89 — DHS

800 *Gelechia rhombella* (D. & S.) — Dinton (8) 24.vii.89 — SMP

811 *Scrobipalpa samadensis plantaginella* (Staint.) — Cloghan (H27) two. 3.viii.89 — KGMB

812 *S. instabilella* (Dougl.) — The Murrough (H20) 23.vii.89 — KGMB

818 *S. atriplicella* (F.v.R.) — Faringdon (22) 25.v.89 — MFVC

820 *S. artemisiella* (Treits.) — Salisbury Plain (8) 25.vi.89 — SMP & JRL; Little Island (H5) 30.vii.89 — KGMB

832 *Caryocolum blandella* (Dougl.) — Rocky Bay (H4) 6.viii.89 — KGMB

841 *Sophronia semicostella* (Hübn.) — Salisbury Plain (8) 25.vi.89 — SMP & JRL

856 *Anarsia spartiella* (Schr.) — Chawridge Bank NR (22) 11.vi.89 bred from *Genista tinctoria* — BRB

867 *Brachmia inornatella* (Dougl.) — Alresford Pits (19) 31.vii.88 —BG

BLASTOBASIDAE

873 *Blastobasis lignea* (Wals.) — Goring (23) 9.vii.89 — MFVC

MOMPHIDAE

880 *Mompha langiella* (Hübn.) — Gresford (50) 5.ix.86 — B. Formstone per HNM

883 *M. raschkiella* (Zell.) — Gorsmaenllwyd at 1200 ft (50) 15.vi.89 — M. Newstead per HNM

888 *M. propinquella* Staint. — High Woods (19) 6.viii.89 — BG; Ddol (51) 6.vii.89 — HNM; Gresford (50) 5.viii.89 — B. Formstone per HNM

COSMOPTERIGIDAE

896 *Cosmopterix orichalcea* Staint. — Pollardstown Fen (H19) 24.vi.89 — KGMB

897 *C. lienigiella* (L. & Z.) — Leckford (12) bred from *Phragmites* — DHS

898 *Limnaecia phragmitella* Staint. — Douglas River (H4) 15.vii.89 — KGMB; Ulverston (69) 20.vii.89 — EFH

909 *Sorhagenia lophyrella* (Dougl.) — Unhill Wood (22) 9 to 14.vi.89, bred from spinnings on *Rhamnus catharticus* 17.v.89 — BRB

SCYTHRIDIDAE

914 *Scythris crassiuscula* (Herr.-Schäff.) — Pydew (49) 10.vii.88 — HNM

915 *S. picaepennis* (Haw.) — Marford (50) 28.vi.88 — B. Formstone per HNM

TORTRICIDAE COCHYLINAE

929 *Phalonidia vectisana* (H. & W.) — Connahs Quay 1988 — M. Newstead per HNM; Glan Conwy (50) 17.vi.89 — HNM

931 *P. luridana* (Gregs.) — Middleton Down (8) 20.vii.89 — SMP

932 *P. affinitana* (Doug.) — Glan Conwy (50) 17.vi.89 — HNM

933 *P. gilvicomana* (Zell.) — Swyncombe Downs (23) bred from heads of *Mycelis* collected 29.viii.88, emerged v.-vi.89 — PHS

945 *Agapeta cnicana* (Westw.) — Gorsmaenllwyd at 1200 ft. (50) 15.vi.89 — M. Newstead per HNM

946 *Aethes rubigana* (Treits.) — Colonsay (102) — MRY & MWH

959 *Cochylidia rupicola* (Curt.) — Pollardstown Fen (H19) 22.vi.89 — KGMB

963 *Cochylis flaviciliana* (Westw.) — Fingest (24) bred *Knautia* — PHS

965 *C. hybridella* (Hübn.) — Ham Cross (RAF Chilmark) (8) 20.vii.89 — SMP

TORTRICINAE

971 *Pandemis cinnamomeana* (Treits.) — Saffron Walden (19) 22 & 25.vii.89 — AME

974 *Argyrotaenia ljungiana* (Thunb.) — Middleton Down (8) 20.vii.89 — SMP; Charlton (16) A.A. Allen, *Ent. Rec.* **102**: 9; Saffron Walden (19) 25.vii.89 — AME

982 *Christoneura diversana* (Hübn.) — Donyland Woods (19) 1.vii.89 — BG

987 *Ptycholomoides aeriferanus* (Herr.-Schäff.) — Ashley Heath (39) 10.vii.89 — RGW

990 *Aphelia unitana* (Hübn.) — Beattock (72) & Dalmally (98) — MWH. *Ent. Rec.* **102**: 244

988 *Epiphyas postvittana* (Walk.) — Cardiff (41) frequent. **New to Wales** (Rothamsted trap) — EFH; Charlton (16) — A.A. Allen, *Ent. Rec.* **102**: 9-10; Buckingham Palace (21) 18.v.89 — J.D. Bradley, *Ent. Rec.* **102**: 119.

1001 *Lozotaeniodes formosanus* (Gey.) — Gresford (50) 6.vii.89 — B. Formstone per HNM

1013 *Olindia schumacherana* (Fabr.) — Maes Hafn, Loggerheads (51) 24.vi.89 — B. Formstone per HNM

1034 *Spatalistis bifasciana* (Hübn.) — Rye Harbour (14) 14.vi.89 — MP
1047 *Acleris schalleriana* (Linn.) — Feeding habits in south Cumbria & west Lancs. — M.R. Shaw. *Ent. Gaz.* **40**: 344
1055 *A. hyemana* (Haw.) — Gorsmaenllwyd at 1200 ft (50) v.89 — HEB
1061 *A. literana* (Linn.) — West Haigh Wood (63) 17.v.89 — HEB

OLETHREUTINAE

1073 *Olethreutes schulziana* (Fabr.) — Gormaenllwyd at 1200 ft (50) 43.vi.89 — HNM
1097 *Endothenia gentianaeana* (Hübn.) — Cefn-y-Bedd (50) bred 24.vi.89 — B. Formstone per HNM
1104 *E. quadrimaculana* (Haw.) — Colonsay (102) — MRY & MWH
1106 *Lobesia reliquana* (Hübn.) — Arundle NNR, Ardnamurchan (97) — MRY
1107 *L. botrana* (D. & S.) — Oxford (23) 24.v.89 — PHS; Winchester (11) 11.viii.89 — DHS
1109 *L. littoralis* (H. & W.) — Gresford (50) 10.ix.89 — B. Formstone per HNM; Trentham (39) 13.ix.89 — RGW
1112 *Bactra robustana* (Christoph) — Pennard Pill, Gower (41) 20.vi.89 — RGW
1115 *Ancylis achatana* (D. & S.) — Riseholme (54) vii.88 (Rothamsted trap) — EFH
1119 *A. geminana* (Haw.) — Llangaffo (52) 25.v.89 — HNM
1120 *A. mitterbacheriana* (D. & S.) — Caergwrle (51) 1988 — M. Newstead per HNM
1124 *A. tineana* (Hübn.) — Glen Fender (89) 18.vi.89 — KPB
1146 *Epinotia rubiginosana* (Herr.-Schäff.) — Gresford (50) 12.v.89 — B. Formstone per HNM
1152 *E. maculana* (Fabr.) — Gresford (50) 1988 — B. Formstone per H N M
1157 *Crocidosema plebejana* Zell. — Walberton (13) 25 & 30.x.89 — J.T. Radford. *Ent. Rec.* **102**: 184
1163 *Zeiraphera ratzeburgiana* (Ratz.) — RAF Chilmark (8) 16.vii.89 — SMP
1182 *Epiblema turbidana* (Treits.) — Manifold Valley (39) 25.vi.84 — RGW
1184a *E. cirsiana* (Zell.) — Isle of Bute (100) v.vi.89 — EFH
1196 *Eucosma metzneriana* (Treits.) — Rye Harbour (14) 14.vi.89, 3rd British record — MP. *Ent. Rec.* **101**: 254
1212 *Rhyacionia pinivorana* (L. & Z.) — Kirkinner (74) 18.vi.89 — EFH
1217 *Eucosmomorpha albersana* (Hübn.) — West Lancaster (60) 27.v.87 — N.L. Birkett, *Ent. Rec.* **102**: 46
1225 *Pammene obscurana* (Steph.) — Goring (23) 19.v.89 — MFVC

1241 *Cydia compositella* (Fabr.) — Near Enborne (22) 20.vii.89 — BRB; Douglas River (H4) 18.vi.89 — Pollardstown Fen (H19) 22.vi.89 — KGMB

1259 *C. fagiglandana* (Zell.) — Kirkinner (74) 19.vi.89, **New to Scotland** — EFH

266a *C. illutana* (Herr.-Schäff.) Tubney Wood (23) larvae in cones of *Larix decidua* collected 6.viii.89 — PHS, DHS, MJS, JRL, MFVC & B. Goater

1271 *C. gallicana* (Guen.) — Achmelvich, Sutherland (108) — MRY

1272 *C. aurana* (Fabr.) — Coed Dolgarrog (49) 15.vi.89 — HNM

1273 *Dichrorampha petiverella* (Linn.) — Coed Dolgarrog (49) vi.89 — HNM

1279 *D. acuminatana* (Zell.) — Gresford (50) — B. Formstone per HNM, genitalia checked

1282 *D. sylvicolana* Hein. — Near Enborne (22) 16.vii. & 3.viii.89 amongst *Achillea ptarmica* — BRB

PYRALIDAE

1289 *Euchromius ocellea* (Haw.) — East Malling (16) 26.ix.89 — D.A. Chambers; St Ives, Ringwood (11) 12.ix.88 — Dr J. Clark

1292 *Calamatropha paludella* (Hübn.) — Weeting Heath NR (28) 7.viii.89 — APF

1293 *Chrysoteuchia culmella* (Linn.) — Borth Bog (46) a diminutive form — MWH. *Ent. Rec.* **102**: 243

1296 *Crambus silvella* (Hübn.) — Borth Bog (46) 19.vii.81 — MWH. *Ent. Rec.* **102**: 243

1307 *Agriphila latistria* (Haw.) — Winterton Dunes NNR (27) 7.ix.89 — APF

1313 *Catoptria pinella* (Linn.) — Colonsay (102) — MRY & MWH

1323 *Pediasia contaminella* (Hübn.) — Dungeness (15) 13.ix. to 26.ix.89 — S.P. Clancy, *Ent. Rec.* **102**: 70

1324 *P. aridella* (Thunb.) — Rye Harbour (14) 14.vi.89 — MP

1325 *Platytes alpinella* (Hübn.) — Alresford Pits (19) 31.vii.88 & 28.vii.89 — BG

1331 *Acentria ephemerella* (D. & S.) — Swarms of the species — JMCH — *Ent. Rec.* **101**: 280

1336 *Eudonia pallida* (Curt.) — Colonsay (102) — MRY & MWH; Eastbourne (14) 24.vii.89 — MP; Borth Bog (46) 19.vii.81 — MWH. *Ent. Rec.* **102**: 243

1342 *E. angustea* (Curt.) — Early dates — R. Darlow *Ent. Rec.* **101**: 198

1358 *Evergestis pallidata* (Hufn.) — How Hill (27) 21.vii.89, Brundall (27) 3.viii.89 — APF; Chillington (39) 16.vii.88 — RGW

1359 *Cynaeda dentalis* (D. & S.) — Eastbourne (14) 26.viii.89, Portland (9) 16.ix.89 ? second generation — MP

1363 *Pyrausta ostrinalis* (Hübn.) — Great Orme & Pydew (49) — HNM; Rhyd-y-Foel (50) — B. Formstone per HNM

1364 *P. sanguinalis* (Linn.) — Wallasey (58) 9.vii.35, possibly the last specimen seen there — RGW

1368 *Margaritia sticticalis* (Linn.) — Spurn (61) 9.vii.89 — B.R. Spence per HEB

1380 *Phlyctaenia perlucidalis* (Hübn.) — Brundall (27) 6.vii.89, Foulden Common (28) 12.vii.89, Boughton Fen (28) 13.vii.89 — APF

1381 *Anania funebris* (Ström.) — Glasdrum NNR, Argyll (98) — MRY

1387 *Nascia cilialis* (Hübn.) — Brancaster (28) 12.vii.89 — APF

1399 *Dolicharthria punctalis* (D. & S.) — Kynance Cove (1) 24.ix.89 a late record — A. Spalding, *Ent. Gaz.* **40**: 29f

1401 *Maruca testulalis* (Gey.) — Dartford (16) 6.viii.89 — B.K. West, *Ent. Rec.* **102**: 44

1414 *Synaphe punctalis* (Fabr.) — Winterton Dunes NNR (27) 20.vii.89 — APF

1417 *Pyralis farinalis* (Linn.) — Dungeness (15) 23.ix.89 — S.P. Clancy, *Ent. Rec.* **102**: 70

1436 *Acrobasis repandana* (Fabr.) — Canklow Wood (63) 23.vi.89, Treeton Wood (63) 1.vii.89 — R.F. Botterill per HEB

1441 *Oncocera semirubella* (Scop.) — Eastbourne (14) 20.vii.89; Portland (9) 16.ix.89 ? second generation — MP; Dungeness (15) 3.ix.89 — S.P. Clancy, *Ent. Rec.* **102**: 70

1449 *Microthrix similella* (Zinck.) — Goring (23) 16.vi.89 — MFVC; Belhus Woods (18) 1.vii.89 — DJLA

1450 *Metriostola betulae* (Goeze) — Hampstead (21) 18.vi. & 23.viii.89 — RAS

1-
452a *Etiella zinckenella* (Treits.) — Bradwell-on-Sea (18) 22.x.89 — A.J. Dewick & S.F. Dewick, **New to Britain.**

PTEROPHORIDAE

1496 *Cnaemidophorus rhododactyla* (D. & S.) — Fingringhoe Wick NR (19) 7.vii.89 — BG

1498 *Amblyptilia punctidactyla* (Haw.) — Rossett (50) 31.viii.89 — B. Formstone per HNM

1503 *Platyptilia ochrodactyla* (D. & S.) — Holt (50) bred vii.88 — B. Formstone per HNM

1504 *P. pallidactyla* (Haw.) — Near Enborne (22) 20.vii.89 amongst *Achillea ptarmica* — BRB

1517 *Adaina microdactyla* (Hübn.) — Pollardstown Fen (H19) 22.vi.89 — KGMB

Hazards of butterfly collecting — Samburu, Kenya, 1979

I think it was my visit to Samburu in 1979, notwithstanding the somewhat unpleasant events to be detailed later, which finally made me certain that I would one day write a book on the butterflies of Kenya (Larsen, T.B., 1991, *The Butterflies of Kenya and their Natural History*. OUP, Oxford). Samburu country is incredibly beautiful, with rounded hills and meandering rivers, emerald green during the wet season — the very epitome of East Africa, and the Samburu park teems with animals. The dry area north of Mount Kenya is more closely related to the Somali zone than to the savannahs further south, which are allied to the Zambesian zone and this is very evident in both butterflies and the larger animals. The zebras are the narrow striped Grevy's Zebra, the Giraffe of beautiful reticulated variety, Beisa Oryx abound. Many of the butterfly species do not extend far south of the Equator and several are endemic to Somalia and northern Kenya.

On arriving at the tented camp, we checked in, dumped the luggage, and went off in search of animals and butterflies. What was that long line of animals in the distance?

"Elephants"I said. "Nonsense", said my wife, "they are too small, and anyhow elephants aren't red".They were elephants, though, which had rolled in red laterite mud. They allowed us to drive to within touching distance, and to observe the myriads of Whites (*Belenois creona* and *aurota*) which settled on their steaming droppings. Giraffes abounded. They have the curious habit of "hiding" behind even small bushes, so that by moving left and right one can provoke a spirited *pas-de-deux,* though always separated by the bush. Old termite mounds in such areas are often clad in a mixture of all the bushes of the caper family on which the tropical Pieridae feed, and it is not unusual to find more than a dozen species in the same spot.

We ended the day amid a troop of baboons on a river bank watching two elephants in love as the sun set over the river, caressing, rubbing shoulders, squirting each other with water and dust. They finally waded across, trunk in trunk. It was a slight let-down that both were males.

Back at the lodge we went straight to dinner, followed by drinks and small talk. It was not till about ten thirty that we reached our tent. An excited babble of Italian was much in evidence: "Have you also been robbed?" "I don't know . . . . I'll check." We had been robbed! "Tutti? . . . "Tutti!" We had not realised that baggage could have been locked in the toilet which was a cement structure adjoining the tent; anyhow, we had been assured it was quite unnecessary.

The only other victim was a tall, rather striking Italian woman. She was in a state of near hysteria, despite a Valium. We decided that the best therapy was to do something active, like making a list of lost effects. I had no idea it was possible to travel with so much underwear, nor that silk underwear could be that expensive, a fact which was underscored by the

prices being quoted in Lira. 20,000 *anything* for a pair of panties? ! ?

Constable Plod, or whatever the Swahili equivalent is, arrived from Archer's Post at two in the morning, rolled his eyes, proclaimed the matter to be way beyond his jurisdiction, and went off to his girl friend among the hotel staff — presumably the real reason why he had bothered to come at all, since boyfriends were not allowed in camp.

Early next morning the heavy artillery from Nanyuki rolled in, two whole Land Rovers full. The staff were duly rounded up and terrorised, the grounds were combed, we were interviewed, and the Land Rovers raced about, scaring the gentle giraffes senseless. Just after breakfast the inspector in charge bore down on us and saluted smartly: It had been two men; they had cut the perimeter fence of the camp; they had loaded the loot in two sacks; they had gone due East; they would doubtless be caught since it was a hike of 30 km; he would report back at regular intervals. We announced our intention of going game watching. He assured us we would be found if there were interested developments.

While watching two small *dik-dik* antelopes perform the most amazing ritual fight a Land Rover rolled up with an item of silk underwear: "Sorry, Italian lady", and off they went in a cloud of dust. There had been a hole in one of the sacks and the thieves left a trail of almost a million Lira worth of Italian underwear. We got back a bit of our *bric-à-brac,* but no valuables, and none of the 20 exposed films. Still, we do have the pleasure of wondering what the elephants, zebras, giraffes, lions and oryx made of it all.— TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Blastobasis phycidella (Zeller) and other Lepidoptera in Guernsey

A stay on this Channel Island from 12th to 19th June 1990 yielded many species of iterest. The macrolepidoptera of the island are mostly well known, but less work has been done on the micros.

The greatest surprise was *Blastobasis phycidella* (Zell.) of which some 20 specimens were noted on the wooded south facing cliffs of the island. They could be knocked out of hedges and overhanging plants by day and were also taken more commonly by night m.v., light. The species is mainly of southern European distribution so its appearance so far north was not expected. W. Fassnidge added the species to the British list when he found four specimens on the wall of a warehouse in Southampton docks in 1930. Like other members of the genus the larva is thought to feed on decaying wood and similar detritus. Our specimens differ superficially from those taken in Spain, for example, by having more pronounced fuscous streaks on the forewings; however, the determination was confirmed by Dr Adamski, an authority on this group. An illustration of the adult is expected to be published in the report of the 1990 Annual Exhibition of the British Entomological & Natural History Society in the *Journal of British Entomology & Natural History.*

In the same location as *B. phycidella* we were delighted also to take two very fresh specimens of the macrolepidopteron *Polyphaenis sericata* (Esp.), the date being about a month earlier than one would expect. This species has been known to be resident in Guernsey since 1889 and there is no firm evidence to suggest it is migratory, despite its inclusion in the 1989 list of migrants pubished in this journal.

A total of 40 species of microlepidoptera were taken which do not appear to have been recorded previously from the island. A box of specimens taken by R.A. Austin was shown us for identification which contained four of these species which he had previously taken, together with six others additional to the island list. We comment only on the more interesting additions.

Luffia ferchaultella (Steph.) cases were found at Saints Bay and specimens bred. The cases were considerably smaller than those of *L. lapidella* (Goeze) collected at Pleinmont. From the latter only one male was bred among many females, indicating that even though this species produces the occasional male, the females of the race are generally able to manage quite well without him! The high density of cases locally also suggests parthenogenesis.

Nemapogon ruricolella (Staint.) was present on the south coast as well as *N. cloacella* (Haw.).

Oinophila v-flava (Haw.) was found at Moulin Huet, we presume the species lives in the open in the same way as it does in the Isles of Scilly.

Biselachista scirpi (Staint.) mines were found near Vale Pond where there remains a small amount of brackish water.

Scrobipalpa instabilella (Dougl.) in several localities was something of a surprise (although not new) in view of the apparent absence of any *Halimione* on which the larvae might feed.

Mompha divisella (H.-S.) was a pleasant surprise, found commonly in stems of *Epilobium montanum* growing in urban wasteland — we might not have found this except for caught specimens in the box belonging to R.A. Austin.

Two specimens of *Phycitodes nimbella* (Dup.) were only determined long afterwards, confirmed by genitalia examination. They are slightly larger and greyer than local specimens of *P. saxicola* (Vaughan). Goater (1986) refers to records from Jersey so this is no great surprise, but pleasing all the same.

Our thanks are due to Peter Costen and Rich Austin for their help, and especially to Mr and Mrs Tim Peet for much hospitality and assistance.
Reference: Goater, B. (1986) *British Pyralid Moths.*— D.J.L. AGASSIZ, The Glebe House, Brewers End, Takeley, Bishop's Stortford CM22 6QH.
J.R. LANGMAID, Wilverley, 1 Dorrita Close, Southsea, Hants PO4 0NY.

Agrotis ripae Hübner, Sand Dart (Lep.: Noctuidae) an adaptation to shifting sand.

I have kept larvae of *Agrotis ripae* on two occasions. They were found in the sand around plants of sea rocket (*Cakile maritima*) on the north coast of Cornwall. I kept them in containers full of sand with food on top. They rested themselves buried in the sand and came up to feed. Once they had finished feeding in the autumn they remained in the sand through the winter. On both occasions when I kept them they appeared on the surface of the sand again in the spring. They did not feed but buried themselves in the sand again where they pupated.

The natural environment of *ripae* is very harsh. The larvae feed on the last flowering plants before the sea. The winter storms and gales move the sand and many of the larvae must be left at a far greater depth at the end of winter. If they were to pupate at this depth the moths may not be able to emerge successfully. By making their way to the surface in the spring prior to burying themselves again, the larvae are overcoming this difficulty. I suspect that this is the reason for the behaviour.— Dr B.P. HENWOOD, 4 The Paddocks, Abbotskerswell, Newton Abbot, Devon.

Pammene suspectana (Zeller) in Huntingdonshire

At the beginning of 1990 I decided to trap some of the woods in my home county of Huntingdonshire (v.c.31) of which no previous records of the moth fauna could be found. One of these was a privately owned wood situated near the southern border of the county. The majority of trapping was by the use of a white sheet with a 125 watt mercury vapour lamp placed in the centre approximately two feet six inches above the sheet. While running one of these traps on 6th May an unknown tortricid was caught. This was later identified by Mr E.F. Hancock as a specimen of *Pammene suspectana,* the sixth record for Britain.

The first record of the species occurring in Britain was in 1975 when a specimen was caught in Cambridgeshire, in a pheromone trap used in commercial plum orchards to monitor the incidence and flight activity of the male Plum Fruit moth (*Cydia funebrana*). Subsequent records were in 1976, again in a Cambridgeshire pheromone trap; 1979 in Worcestershire in a pheromone trap; 1984 in a light trap in Wiltshire and finally in 1986 found resting on foliage in Berkshire.

I am most grateful to Mr E.F. Hancock for his assistance with the identification of this moth and for preparing the genitalia slide.— BARRY DICKERSON, County Lepidoptera Recorder, Huntingdonshire.

Apion modestum Germar (Col.: Apionidae) in West Cumbria

On 12th August 1990 I tapped one specimen of *Apion modestum* Germar from a small plant of *Lotus uliginosus* Schkur (Greater Birdsfoot Trefoil) which was growing in a damp situation along the course of an old disused railway line running between Crossfield and Moor Row (NY15.10) in West Cumbria.

Apion modestum (formerly known as *A. sicardi*), was added to the British list by M.G. Morris (1975, *Entomologist's mon. Mag.* **111**: 165-171), and according to Morris (1990, *Handbk. Ident. Br. Insects,* **5**(16): 57), *A. modestum* has now been recorded from Dorset, S. Hants, W. Kent, Shropshire and South Wales. The weevil has not previously been recorded from West Cumbria and this is a new record for the county and the first for v.c.70, Cumberland.

On 18th October 1990 I returned again to the Crossfield site and collected some seed pods of *Lotus uliginosus*. From one pod I obtained one more adult of *A. modestum,* which on dissection proved to be a male. Several other seed pods contained weevil pupae, all of which had been heavily parasitised; and one other pod contained four black, parasitic wasp pupae.— R.W.J. READ, 43 Holly Terrace, Hensingham, Whitehaven, Cumbria CA28 8RF.

Two species new to the Isle of Wight

During last October Mr D.B. Wooldridge brought me a geometrid moth which he had failed to identify, which he had taken at his actinic light trap at Niton on 12th October 1990. I confirmed this to be a specimen of *Thera cupressata* Geyer which was new to the Isle of Wight. This species is now established in the Channel Islands and from one locality in Dorset and will probably extend its range along the south coast.

On 18th October 1990 I took two specimens of *Trigonophora flammea* Esp. at my mercury vapour light trap at Freshwater. This species has not been recorded from the Isle of Wight before and I took a third example on 20th October. It was also the largest influx of this migrant along the south coast in recent times.

The 18th October was a night of considerable migrant activity and I also took *Heliothis armigera* Hb., two *Mythimna unipuncta* Haw., three *Mythimna albipuncta* D. & S., one *Agrotis ipsilon* Hufn., two *Autographa gamma* Linn., two *Peridroma saucia* Hb., seven *Palpita unionalis* Hb., one *Nomophila noctuella* D. & S., and two *Udea ferrugalis* Hb.— S.A. KNILL-JONES, Roundstone, 2 School Green Road, Freshwater, Isle of Wight.

More on *Cis festivus* Panz. and *C. vestitus* Mell. (Col.: Cisidae)

I was interested to read the paper by my friend Mr A.A. Allen (*Ent. Rec.* **102**: 177) dealing with this species pair for I have long had difficulty trying to separate these two species. After reading the note, I went through my relevant specimens again and, using the characteristics recommended in the paper, separated out four which appeared to be *festivus*. I was glad to have these determinations kindly confirmed by Mr Allen. I might add that two of these were in my collection as "*vestitus*".

The field incidence of the two species in my experience is more or less as reported by my friend. Certainly, I have found *festivus* much the rarer of the two, having come across only these four examples in the past 20 years.

Their records are more recent than his and sufficiently different to be given here, viz. Barton Mills, Suffolk v:80; Loch Garten, Easterness vi:84; Dornie, Wester Ross vii:84 and Sleat, Skye vii:88. Over the same period, I have come across *vestitus* at eight different sites (about 20 examples all told), mostly in places in the southern half of England with old oak trees, with a single example from Scotland (Arisaig, Westerness vii:73).— J.A. OWEN, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

Beetles taken at a dead Blackbird, Broadway, Worcs, spring 1990

In mid-April 1990 I placed a dead Blackbird on bare earth at Broadway, Worcestershire (SP03) and monitored beetles visiting it. The weather soon became hot, and by 30th April the corpse was well dessicated. By 14th May when the last beetles were recorded, the corpse was a scarcely recognisable husk. Seventeen species were noted, and whilst none of them are rare, I was nevertheless surprised how such a small cadaver could satisfy the requirements of so many species, and serve to demonstrate the sensitivity of their olfactory processes.

Early on, the corpse was visited by a *Platystethus nitens* (Sahlberg) (presumably diverted during a spring flight) and *Atheta harwoodi* Williams, this last regularly observed at putrefying organic matter. During a brief wet spell a female *Nicrophorus humator* (Gleditsch) oviposited beneath the corpse, and the larvae of *Calliphora* began to retreat into the earth as the weather became hot again on 30th April. This prompted the first appearance of *Saprinus semistriatus* (Scriba), ovipositing *Hister merdarius* Hoffman, and *Atholus duodecimstriatus* (Schrank). *Philonthus politus* (Linnaeus) remained for some time predating the dipterous larvae, and *Creophilus maxillosus* (Linnaeus) appeared briefly. An *Anthicus bifasciatus* (Rossi) paid some attention to the corpse at the same time. On 8th May a specimen of *Dermestes murinus* Linnaeus was observed, a rather scarce species locally with an amazing knack of turning up on corpses when they are in the optimal condition for the species.

Necrobia violacea (Linnaeus) persisted to the last scrap of usable tissue, long after *Aleochara* Spp had passed their peak.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcs WR10 3 EP.

The hornet *Vespa crabro* L. breeding in Richmond Park, S. London

George Else's report on bees and wasps for *British Wildlife* (Vol. 2, 118-119), in which records of the hornet *Vespa crabro* from a variety of south London suburbs, prompts me to report a record of this species in 1985. On 22nd August, 1985, during a visit to Richmond Park, I observed a number of hornets flying around the old oaks near Pen Ponds. On following them, I came across the nest which was in a hollow oak close by Pen Ponds car park. Thus, it would seem that the hornet is at least established in this area.— R.K.A. MORRIS, 241 Commonside East, Mitcham, Surrey CR4 1HB.

Pterostichus rhaeticus Heer (Col.: Carabidae) in Kent (London) and Radnorshire

The addition to our fauna of this species, not externally separable from *P. nigrita* (Payk.), is fully dealt with by Dr M.L. Luff (1990, *Ent. mon. Mag.* **126**: 245-9). He concludes that the two have similar distributions in Britain, but that *P. rhaeticus* tends to be more prevalent in the north; and the experience of my good friend Prof. J.A. Owen, to whom I am indebted for a dissected male of each species, is much the same. To my surprise, of two males from here (Charlton), recently dissected, one proved to be *nigrita* and the other an equally definite *rhaeticus*. Both are from damp ground beside a watercourse. I have not yet had time to investigate further, but thought this result worth a preliminary note.

I also have in my collection a male *P. rhaeticus* from Llandrindod Wells, Radnorshire, taken in 1949 by the late Joseph Cribb.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Immigrant moths recorded from Sussex and Norfolk in October 1990

On the evening of 16th October Mark Parsons and myself visited Littlehampton on the Sussex coast in the hope of recording immigrant Lepidoptera. Three m.v. lights were set up at dusk near to the sea front and I kept a regular check on the moths arriving. After more than an hour of operation very few moths had been attracted and no scarce species noted. In the meantime, Mark diligently searched ivy blossom and was rewarded by capturing a male Flame Brocade, *Trigonophora flammea* Esper. Additional searches of this nectar source failed to produce further examples of this rare immigrant, but later examination of the lights revealed a second male, at rest, adjacent to one of the traps. Other recent records for *T. flammea* in Sussex include a specimen noted only a few miles away at Walberton, on 20th October 1989 by J.T. Radford (Bretherton & Chalmers-Hunt, *Ent. Rec.* **102**: 215-224). Also observed on ivy blossom at Littlehampton were two individuals of *Mythimna l-album* (Linn.), a species which may now be established as a resident in Sussex.

Later in the night we searched ivy a little further west along the coast at Atherington. This resulted in more immigrant moths being recorded, including two *Palpita unionalis* Hub., one *Mythimna unipuncta* Haw. and one *M. vitellina* Hub., together with some commoner immigrant and resident species. Of additional interest here and still further west near to Pagham Harbour, was the presence of the beetle *Oncomera femorata* (Fab.). This scarcely reported and nocturnal species, which is most often noted at ivy blossom, was present in some numbers at both localities.

Having returned to East Anglia on the 17th I decided to carry out more light trapping, this time at Winterton-on-Sea, on the Norfolk coast. This resulted in the long awaited thrill of seeing a live *Acherontia atropos* Linn. when a single male came to light shortly after dark. The following two

evenings at the same locality in a very mild airstream, failed to produce any scarce visitors to light, though many of the more frequent immigrants were recorded. During this period an m.v. light was also operated in my garden at Brundall, and here a single male *Chrysodeixis chalcites* Esper was captured on the night of 19th-20th October. In view of the possible confusion between this species and the related *C. acuta* Walker, the specimen was shown to Dr I.J. Kitching of the Natural History Museum, who, on the basis of external features was of the opinion that it was *C. chalcites*. Subsequent dissection of the male genitalia has confirmed this determination.— A.P. FOSTER, 58 St Laurence Avenue, Brundall, Norwich, Norfolk NR13 5QN.

***Agrilus pannonicus* (Piller and Mitterpacher) (Col.: Buprestidae) recorded from Mitcham Common, Surrey, in 1990**

On the 29th June 1990, I casually took an example of *Agrilus pannonicus* from an oak leaf at the edge of the golf course on Mitcham Common. My retaining the specimen was based on its appearance and not on any notion of rarity. It therefore came as some surprise to find that this species is regarded as a grade two old woodland species (Harding and Rose 1986) which breeds in oak stumps and logs.

Mitcham Common has no history of old woodland and few oaks are much older than 60 years. It would therefore seem possible that *A. pannonicus* has recently colonised the site. The storm of 1987 resulted in a small number of fallen oaks, most of which have been dismembered and left *in situ*. This must surely favour *A. pannonicus* but the question remains, where did it arrive from? It would seem that this species is well-established at Ashstead Common (Menzies 1987 - 1989) an old pasture woodland, and is also known from Richmond Park (Allen, 1988). Both sites are within ten miles of Mitcham Common.

A further possible explanation for the presence of *A. pannonicus* is that it is perhaps not quite so uncommon as is generally accepted. There remains the possibility that the adults favour sunlit leaves higher up in the canopy and it is simply chance that occasional flying individuals are recorded (Godfrey, 1987) or a breeding population is found (Foster, 1987). A further possibility is that the hot summers of the past two years have favoured this insect which is now spreading.

References: Allen, A.A., 1988. Notes on *Agrilus pannonicus* Pill. & Mitt. (Col.: Buprestidae) in 1985. *Ent. Rec.* **100**: 25-28.

Foster, A.P., 1987. *Agrilus pannonicus* (Piller and Mitterpacher 1783) and other noteworthy insects recorded from Hampstead Heath in 1984. *Ent. Rec.* **99**: 153-5.

Godfrey, A.R., 1987. *Agrilus pannonicus* (Pill. & Mitt.) (Col.: Buprestidae) in Windsor. *Ent. mon. Mag,* **123**: 40.

Harding, P.T. and Rose, F., 1986. *Pasture Woodlands in Lowland Britain*. Institute of Terrestrial Ecology, Monks Wood.

Menzies, I.S., 1987 - 1989. Exhibits at the Annual Exhibition of the British Entomological and Natural History Society.—

R.K.A. MORRIS, 241 Commonside East, Mitcham, Surrey CR4 1HB.

Observations on a gathering of *Thaumatomyia notata* Mg. (Dipt.) in Cardiganshire

Following the warmest August on record, 1990 experienced very little rain, falling only on seven days in July and twelve in August, at Cnwch Coch, near Aberystwyth, Cardiganshire, Wales, which at 122m above sea level is located in an agricultural area of predominantly permanent pasture with forestry. Gathering of *Thaumatomyia notata* Mg. is not observed every year in autumn, when it does occur the fly frequently causes a public nuisance by invading domestic premises in very large numbers, usually mentioned in the press in only the broadest terms. This habit of gathering together has been mentioned by several authors referred to by Oldroyd, *The natural history of flies,* Weidenfield, 1964.

On 13.ix.1990 a gathering of *T. notata* had formed by 12.00 hours, BST at a height extending from four (1.2m) to six (1.8m) feet from the ground above a pathway in a sheltered but open space surrounded by hedgerows and shrubs in front of a south-facing conservatory. Details of climatic conditions prevailing at the time are given in Table 1.

Adult flies have a characteristic slow moving flight pattern and the group of flies drift in the eddying air, moving up and down, to and fro. Sometimes two flies may be seen to make contact and rapidly dart out of the group. The purpose of *T. notata* gathering in such numbers in autumn appears to be for courtship and possibly mating. Sexual union appears to be of short duration.

When the air cooled and light intensity diminished, the group sought shelter in a conservatory, possibly attracted by warm air issuing from two ventilators. Some continued their flight inside for a while before converging on the windows and crawling up the glass. At dusk they all aggregated at the corners of the window panes, each fly in contact with its neighbour. The opportunity was taken to discharge an aerosol containing a rapid knock-down insecticide, enabling the collection of the aggregation.

A gathering of this species of fly resumed again on 14th and 15th September, and each evening they were collected by the method described, so that the majority of the flies in this assembly were collected and counted, and totalled 10,370 individuals. Some flies were scattered over the foliage of plants and were not collected so that 12,000 individuals would be a fair approximation of the total size of this gathering. Very few flies nearby were also observed covering about an area of $120cm^2$ in the west-facing corner of the wall next to the ceiling in a living room of a house at Llanfihangel-y-creuddyn. A very small gathering of about 200 were flying adjacent to another south-facing corner, of a wooden shed at a height of about 30m at Newent, Gloucestershire, on 10th October, on a calm, dry afternoon of hazy sunshine when the temperature was about 14°C.

As has been observed previously in such gatherings, a small wasp may be found among the flies and this was the case at Cnwch Coch. Single examples of female *Cyrtogaster vulgaris* W. and *Necremnus tidius* (W.) were identified by Dr R.R. Askew to whom the writer expresses his thanks.

Those *T. notata* that gather in heated domestic buildings in the autumn do not survive to escape into the open air, many dying between the window and secondary glazing in the upstairs bedroom at Cnwch Coch, a few days after entry.— PHILIP M. MILES, Werndeg, Cnwch Coch, Aberystwyth, Dyfed, Wales.

Conditions when assemblies of *Thaumatomyia notata* Mg. were observed September 1990

Date	Time (BST) of assembly	Bar.mb	Temp.°C Screen	Temp.°C previous 12 hours Min.	Temp.°C previous 12 hours Max.	Relative % Humidity
13.ix.	12.00	1026	19	10	21	75
14.ix.	13.30	1026	21	9.5	23	76
15.ix.	15.00	1027	20.5	6.5	20.5	79

Weather conditions on 13th-14th hazy sunshine becoming overcast, calm. 15th humid, overcast, cooler, wind gusty N.E.f.6. After this change in the weather no flies were seen.

Males	Females	Total No. counted
52.65%	47.35%	10,370

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Welcome

We have great pleasure in welcoming two new members to the editorial team of the *Record* — John Owen and Adrian Spalding. Paul Sokoloff

To all our contributors

PLEASE HELP US! The hard-pressed editorial team spends a lot of valuable time correcting simple format errors in your notes and papers so that they can easily be translated by the printer into the house style of the *Record*. The inside of every front cover contains a few simple notes to help contributors.

The most common "mistakes" are underlined headings (gallons of "Tippex" wasted here), words or titles in block capitals (please let the editor decide!), single spacing (so easy to miss out a whole line during typesetting), incorrect abbreviations for references (look at the previous issues if in doubt) and only a single copy supplied (photocopying is expensive and time consuming).

We will always help those without access to a typewriter; we expect a few errors from time to time, and are prepared to redraft text from inexperienced authors. Please help us to help you. If you need further persuasion, imagine you are the editor sitting at your desk on a warm summer evening, a pile of interesting notes and observations to edit (all single spaced in block capitals and underlined) — moths start thudding against the windowpane, your larvae have eaten all their foodplant to bare stalks, and you reach for the Tippex . . . .

Behavior-Modifying Chemicals for Insect Management. — Applications of Pheromones and other Attractants.

Edited by **R.L. Ridgway, R.M. Silverstein** and **M.N. Iscoe**, 8vo, pp.761. Marcel Dekker, inc., New York. Papercovered hardback. Price $195 (N. America), $234 (U.K.)

Since 1959, when the sex attractant pheromone of *Bombyx mori* was first isolated and chemically characterised, the use of such chemicals has promised much for insect control in agriculture. The use of pheromones is free from many of the problems associated with conventional insecticides, such as environmental contamination, vertebrate toxicity and pest resistance so it is of much interest as to why such methods have failed to displace the older technology from all except relatively few areas of application.

The use of pheromones and other semio-chemicals for pest control can be divided into the broad areas of attraction and mass destruction, mating disruption and monitoring combined with biological and chemical control. Any of these techniques requires the knowledge and application of complex considerations of chemistry, insect physiology, economics and ecology. With the realisation that the use of pheromones usually involves controlling adult reproduction in order to reduce the field population of the damage-causing larval stages, the myriad of problems besetting effective economic control by pheromones becomes evident.

Although not a conference proceedings this multi-author volume is a

direct consequence of a conference on insect sex attractants held in the USA and the viewpoint and examples are largely but not exclusively North American.

The book is divided into seven parts: Principles of Research and Development, Pest of Horticultural Crops, Forest Insect Pests, Pests of Field Crops, Stored-Product Pests and Veterinary, Development Registration and Use and Future Prospects.

The general reader interested in insect control will be most concerned with the principles section of the volume. This covers such important fundamentals as chemical identification of pheromones and their precise mixtures, design of controlled-release formulations, chemical synthesis etc, and as such consists of a reasonably complete overview and introduction to pheromone technology. The subsequent chapters in parts 2 - 6 are all particular examples of the commercial or research applications of insect sex attractants in specific crop outlets. These serve as examples to illustrate the principles and problems described in part 1.

The final chapter by Heinrich Arn sums up the future prospects for the industry and contains the following telling insight into a realistic future for control by pheromones:— "Predictions on the success of pheromones have always been based on economics. We can indeed think of two mechanisms by which semio-chemicals could win the competition with insecticides: One is by public support . . . [the other is] through a ban on insecticides". There is also an appendix which contains a list of commercial suppliers.

The high cost of this volume will make it of most interest to libraries and institutions and as such will be of general utility to those professionals actively engaged in pheromone applications for insect control.

P.J. Jewess

Obituary

Jeremiah (Jerry) Briggs. 1904 - 1991

Readers will be sorry to hear of the death of Jerry Briggs on 22nd January 1991 at the age of 86 years.

He was born on 9th May 1904 at Wyke Farm near Bradford, Yorkshire, where his father was a farmer. His parents died when he was only a few years old and he was cared for by relatives. After attending Bradford Grammar School he set up as a nursery gardener and built up a considerable business in that occupation.

His interest in natural history was fired at an early age (about six years, he thought) when he observed a butterfly at rest on some flower — species of butterfly and flower not remembered. From that time on his interest remained for the rest of his long life. During his Bradford days he was an active member of the Bradford Natural History Society, to which he contributed papers, and also to the Yorkshire Naturalists Union on which he served for some years as a committee member.

Soon after the end of World War two he started operating a mercury vapour trap and kept meticulous records of all his moth captures. He continued to operate his trap until a short time before his death when failing eyesight restricted his abilities.

Jerry retired from Bradford and came to live at Slackhead near Beetham, Cumbria in 1968. Here he was in an ideal and enviable situation for pursuing his entomological interests. His house was on the carboniferous limestone formation and he was nearly surrounded by good mixed woodland. Within a few miles were numerous other good habitats for insects. He devoted his time to Lepidoptera and his garden. Being by profession a nurseryman his garden became indeed a thing of beauty and joy. From the time of his arrival at Slackhead until a year or two before his death his m.v. trap was operated nearly every night of the year. In recording the capture of *Catocala nupta* (L.) (on 5th October 1987) in *Ent. Rec.* **100**: 54 he noted that up to that time he had taken 401 species of macrolepidoptera at his garden trap — a most remarkable achievement! The secret of his success was owing to his diligence — the trap would be inspected before he retired to bed, as would the walls and vegetation surrounding it. Then another inspection would be made during the night, often at 2 or 3am, then, yet again, at dawn. I believe very few of us can claim such dedication. Jerry very often referred to the fact that by making these visits he observed many species which would not have entered the trap and would have disappeared by dawn, and also he forestalled the hungry birds in their dawn forays.

For some years an m.v. trap was operated at the RSPB Reserve at Leighton Moss, near Silverdale. Jerry was responsible for the determination of the macrolepidoptera taken and the results were passed on for the Rothamstead Insect Survey, then in progress on a countrywide basis.

In the period from about 1950 until the last two years he published almost fifty notes in this *Journal* concerning uncommon captures and immigration records.

Jerry was well-known in the entomological world and many will have happy memories of visits to his home at Slackhead. All were made very welcome, all were impressed by his knowledge, knowledge which was freely available to the enquirer. His wife, Florence, contributed generously to the welcome of visitors.

During his entomological lifetime he kept highly detailed notes of his captures and observations. His notebooks and diaries, as well as his excellent collection of lepidoptera were donated to Cliffe Castle Museum, Keighley, Yorkshire, where they join those of his close friend, the late Cecil Haxby.

He will be greatly missed by his many friends but most of all by his widow, Florence, to whom we extend our sincere sympathies.

N.L. Birkett

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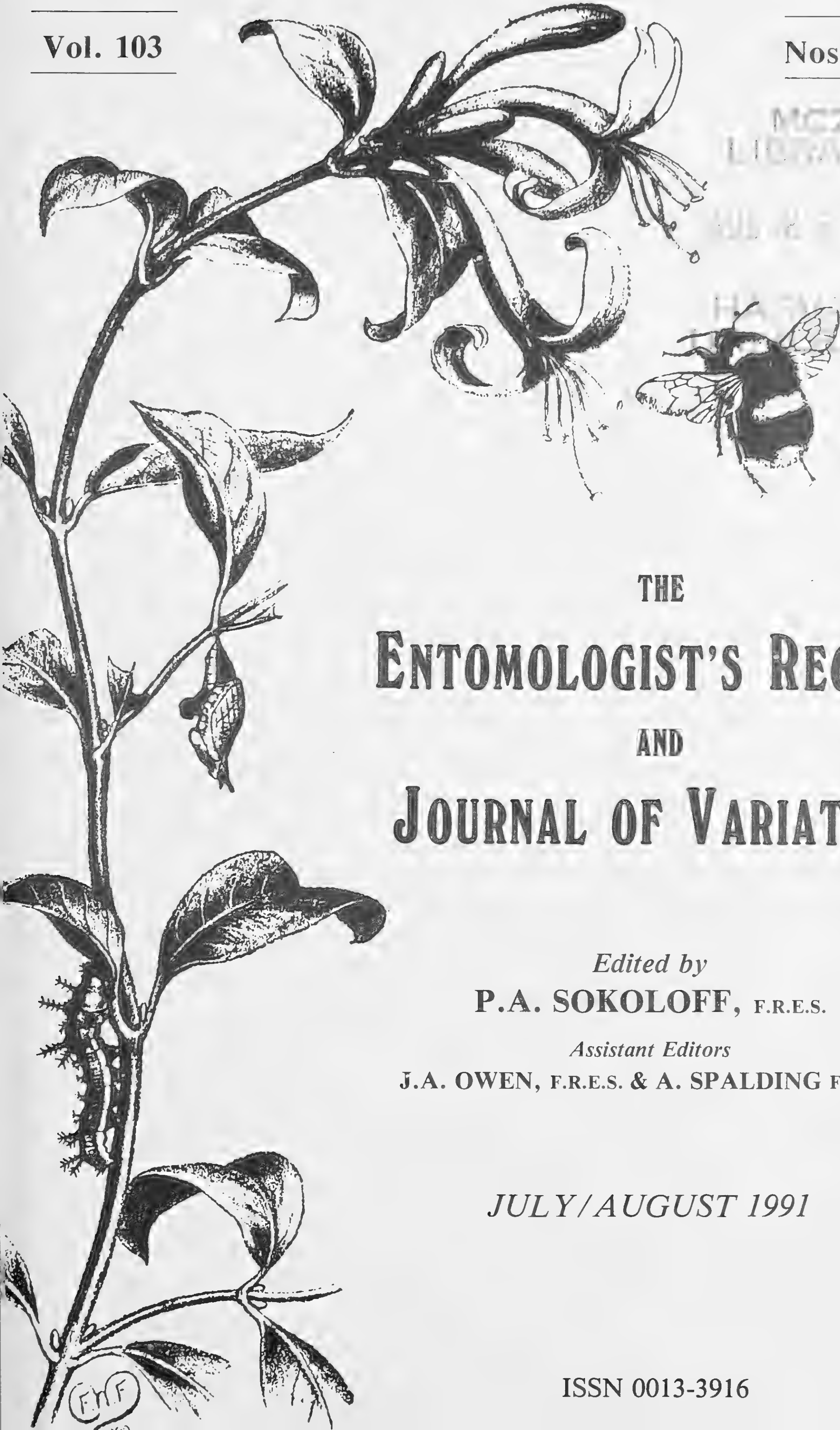

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ORTHOPTERA AROUND BIRMINGHAM

JOHN PAUL

104 Southfield Park, Bartlemas Close, Oxford OX4 2BA.

BETWEEN October 1979 and July 1986, I lived in Birmingham and was able to devote some spare time to the study of Orthoptera and other insects in and around that city. Here, I present a summary of my knowledge of the Orthoptera to be found around Birmingham. A study of the geographical distribution of Orthoptera will be of value to entomologists who specialise in other orders of insects: Orthoptera serve as useful indicators of particular types of habitat.

The area chosen for discussion comprises the four old counties of Worcestershire, Warwickshire, Staffordshire and Shropshire (Watson-Praeger vice-counties 37, 38, 39, 40). At its centre lies the Birmingham -Black Country - Wolverhampton conurbation which, since local government reorganisation in 1974, approximates to the new county of West Midlands. The four vice-counties contain the majority of sites which form the traditional collecting grounds of Birmingham entomologists.

Literature on midland Orthoptera is sparse: Lucas (1920) gives a few records; Fincher (1953, 1955, 1964) gives valuable accounts, especially of the Bromsgrove district; Ragge (1965) provides vice-county maps. Marshall and Haes (1989) provide the most recently published source of distribution maps plotted on a 10km square basis. Mr Haes has kindly shown me updated unpublished maps (pers. com. 1989) which show further records held by the Biological Records Centre but there are still gaps in the coverage of many species. An exciting development over the last few years has been the creation of the Warwickshire Orthoptera Survey — an atlas of the county's Orthoptera has been compiled by Mrs Pamela Copson of Warwick Museum (Copson, 1984).

Compared with the southern and coastal parts of Britain, the English Midlands have a poor orthopterous fauna. When I moved from Bristol to Birmingham in 1979, I was struck by the lack of insect noise on warm evenings: the Dark Bush-cricket, *Pholidoptera griseoaptera,* which is so common in the south is confined to a few favoured localities in the Birmingham district. Indeed, I would often travel south — to Oxfordshire or the Cotswolds and beyond — to see species that are scarce or absent near Birmingham. Nevertheless, there are some splendid localities in the West Midlands, rich in Orthoptera and other aspects of natural history, some being of national importance.

Unless otherwise stated, the following records and observations are my own and were made between October 1979 and July 1986. Furthermore, various entomological friends have told me of their findings.

Species

1. Oak Bush-cricket, *Meconema thalassinum* (De Geer)

This insect is generally widespread in woods, hedges and isolated trees to the south of Birmingham but there are few records for Staffordshire. Despite beating the branches of numerous trees in the Birmingham suburbs, I have never seen it within the city but it can be found a few miles to the south in the complex of woods around Chaddesley Corbet. Despite a record from near Rugeley in Staffordshire, my own searches of oaks near Cannock Chase have been fruitless. The Warwickshire survey shows it to be well distributed in that county.

WORCS: Pepper Wood, female, on oak, 3.x.1985; Santery Wood, male, two females, from oak, two females from sallow, 3.x.1985; Monk Wood, male, on bramble, 22.ix.1985; Trench Wood, nymph, 1986, M. Bryan; Linthurst Newtown, on laurel, c..1982, M. Bryan; Randan Wood (Fincher, 1953); Shrawley Wood (Fincher, 1953); Wribbenhall, Bewdsley (Fincher, 1955).

WARKS: Widespread throughout the county except for the West Midlands conurbation (Copson, 1984).

STAFFS: Madeley (Daltry, 1933); Mr R. Hill (pers. com., 1985) was told of the capture of a specimen near Rugeley; Mr R. Norman captured and released a specimen, which he presumes to have been this species, in woodland at Chillington Park in the early 1980s. A specimen was collected by Richard Clinton at his home in Little Aston, where it had been attracted to light, on 5.viii.1989 (M. Bryan, pers. comn.).

SALOP: Wyre Forest, sluggish female and two dead in cobwebs, 17.x.1981; Alverley, on maple, 1980s, R.G. Kemp; Much Wenlock and Blakeway Coppice (Smith, 1984).

2.Dark Bush-cricket, *Pholidoptera griseoaptera* (De Geer).

This insect is locally common in wooded parts of Worcs, its range of distribution extending into the western parts of Warks and along the Severn into Salop. There is no Staffs record.

WORCS: Monk Wood, common, 22.ix.1985; Bewdley, stridulating males on bank of River Severn, 2.ix.1984 and 24.ix.1985; Ribbesford, stridulating male on bank of River Severn, 1985; Trench Wood, stridulating males, 1984; south-west of Bromsgrove (Fincher, 1953); between Stourport and Holt Heath (Fincher, 1953); Linthurst Newtown, M. Bryan, 1980s.

WARKS: Moreton Bagot (Fincher, 1953); Lowsonsford, N.J. Court, 11.ix.1987; Red Hill House, Alcester, D. Musson and J.A. Hardman, 1980; Temple Grafton, Weathley Wood and Exhall, R.J. Juckes, 1984; Alcester to Broom, disused railway line, M.W. Finnemore, 3.ix.1986.

STAFFS: No record.

SALOP: Quatford, one male on bank of River Severn, 25.ix.1985; Alverley, R.G. Kemp, 1980s.

(Lucas (1920), records this species from Repton Shrubs, Derbyshire. I visited this site on a warm afternoon in September 1984 but failed to find the species, despite the presence of visually suitable habitat. Evans (1970), records the Dark Bush-cricket from Owston Woods, Leics. I found it to be still present there on 29.viii.1984.)

3. Grey-winged Bush-cricket, *Platycleis albopunctata* (Goeze)

Kevan (1951, 1952) refers to the capture of a specimen of this normally coastal species at Ettington, near Stratford-on-Avon. There has been no recent record of this insect in the Midlands and the Ettington record cannot be easily explained.

4. Bog Bush-cricket, *Metrioptera brachyptera* (L.)

This is a very localised insect in the midland counties.
WORCS: No record.
WARKS: Near Stonebridge (Kevan, 1961); Bickenhill Plantation, in tall grass, Jeremy Rhodes, 4.ix.1986 — a specimen has been deposited in Warwick Museum and identification confirmed by Mrs Pamela Copson [2 nymphs, May 1990, J.P.].
STAFFS: Camp Hill, Maer Woods (Daltry, 1933; Kevan, 1954); Oldacre Valley, Cannock Chase, 24.ix.1983; Penkridge Bank, 5.viii.1984 and 10.viii.1985 (Paul, 1986); Sherbrook Valley, Cannock Chase, 1983 and Penkridge Bank, 1984 (R. Hill, pers. com., 1985); Sher Brook, Cannock Chase (Clements, 1987); Highgate Common, small colony found by Mr A. Moffet and confirmed by Mr R. Hill (R. Hill, pers. com., 1990).
SALOP: Whixall Moss (Elton, 1947; Fincher, 1953). I have found it on several visits to Whixall Moss during the 1980s; Cramer Gutter, 2.ix.1984 and 17.viii.1985.

(Lucas (1920), records this species doubtfully from Repton Shrubs, Derbyshire. I failed to find the species there in 1984.)

5. Speckled Bush-cricket, *Leptophyes punctatissima* (Bosc.)

This species is widespread in the midlands and appears to be more common in the south of the region under discussion. It is more easily overlooked than many other species of Orthoptera since the chirp of the male is scarcely audible at any distance.
WORCS: Widespread (Marshall and Haes, 1989); Monk Wood, 1980s, M. Bryan; Brotheridge Green, near Malvern and Wyre Forest (Fincher, 1964).
WARKS: Many records from centre and south of county, 1980s (Copson, 1984).
STAFFS: No record.
SALOP: Marshall and Haes (1989).

6. House Cricket, *Acheta domesticus* (L.)

The introduced House Cricket is now especially associated with hospitals in Britain, although as recently as 1953, Fincher described it as "Frequent in

bakehouses, farms and rubbish tips at many places in north Worcs." During hot weather in may stray outdoors. In cold weather, it may be heard singing around hospital radiators and hot pipes.

I have heard it at the following hospitals in and around Birmingham: Queen Elizabeth Hospital, Birmingham, 1979-85; Dudley Road Hospital, 1983; Rubery Hill Hospital, 1984; Selly Oak Hospital, 1984; East Birmingham Hospital, 1984; Walsall Manor Hospital, 1986. I have heard it singing also at Birmingham Medical School, 1979-85 and the City General Hospital, Stoke-on-Trent, 1985. Several records from central Warks, 1980s (Copson, 1984).

7. Mole Cricket, *Gryllotalpa gryllotalpa* (L.)

On a visit to Stoke-on-Trent City Museum in 1985, Mr G. Halfpenny kindly showed me a preserved adult mole cricket which had recently been captured in Stoke. It seems probable that this insect had been imported amongst foreign vegetables. At the time of writing, I am informed of a record of this elusive insect that has recently been reported to E.C.M. Haes by John Burton; it seems that Mole Crickets were heard in a water meadow near Wyre Piddle, Worcestershire by Dr R.W. Payne until 1985, when the meadow was ploughed up to grow barley. Lucas (1920) mentions old records from Birmingham.

8. Slender Groundhopper, *Tetrix subulata* (L.)

Widespread to the south of Birmingham.

WORCS: Castlemorten Common (Fincher, 1955); Phepson, by pond, 1.v.1986; Dean Brook, near Saleway, 1.v.1986; Stanford Bridge, by River Teme, 29.iv.1984; Sinton, by lake, 29.v.1984; Monk Wood, M. Bryan, 1983.

WARKS: Ufton Fields, S. Shaw, 12.v.1962; Brandon Marsh, J. Maskrey, 1983; J. Paul, 1.ix.1983; Stockton Cutting, P.J. and K.M. Reeve, 18.ix.1983; J. Paul, 7.vii.1984; Traitor's Ford, J.A. Hardman and J. Paul, 11.viii.1984; Ryton Picnic Site, P.J. Copson, 14.viii.1984; Ufton Hill Farm, Toft Farm, Stockton Cutting, Draycote Water and Ufton Fields, P.J. and K.M. Reeve, 1984; Hams Hall, under piles of wood, W.J. Hough, 26.x.1985; Brandon Marsh, Ryton Wood, Coombe Abbey and Wainbody Wood, S.A. Lane, 1986; Weddington Railway Sidings, Warnact Survey Team, 1.vii.1985; Harbury Quarry, C.J. Palmer, 11.v.1985.

STAFFS: No record.

SALOP: No record, but is known from the Clwyd bank of the River Dee, where it was discovered by Mr Ian Wallace, in May, 1983 (Haes, 1983). The opposite bank of the river is in Shropshire and it is probable that *T. subulata* occurs there also.

9. Common Groundhopper, *Tetrix undulata* (Sowerby)

This species sometimes occurs with *T. subulata*. The two species are

difficult to differentiate as nymphs which may occasionally result in inaccurate records.

WORCS: Wyre Forest, on railway cutting, vi.1981; Trench Wood, 1984 and 1987; Randan Wood and Purshill Green (Fincher, 1953).

WARKS: Waverley Wood, H.W. Daltry, 25.iv.1951; Bickenhill (Fincher, 1953); Snitterfield Bushes, D. Musson, 13.viii.1984; Herald Way tip, Wappenbury Wood, Ryton Wood, and Wainbody Wood, S.A. Lane, 1986; Earlswood Lakes Station, Danzey Green Station and Weddington Sidings, Warnact Survey Team, 1985.

STAFFS: Dovedale and Burnt Woods (Daltry, 1933); Chartley, dry field, 24.ix.1983; Wilbrighton, disused railway, 26.v.1986.

SALOP: Whixall Moss, 26.vi.1981, vii.1983, vii.1984, 6.vii.1986; Cramer Gutter, 2.ix.1984; Bell Coppice and Sturt Common, 27.v.1986; Alverley, bank of River Severn, 23.v.1986.

10. Stripe-winged Grasshopper, *Stenobothrus lineatus* (Panzer)

Ragge's vice-county maps (1965) include Herefordshire for this insect on the strength of a record from the Malvern Hills. The specimen on which this record is based has been examined by G.B. Collins, and is in the British Museum (Natural History). It is a macropterous example of *Chorthippus parallelus* and there is therefore no evidence that this species occurs in the area under discussion (Haes, 1985).

In Britain, *S. lineatus* may be found on calcareous grassland, sandy heathland and sand dunes. Despite searches of the Broadway district and Bredon Hill in Worcestershire and of Ufton Fields, Edge Hill and other visually suitable habitat in Warwickshire, the author has failed to find it in the region. Strong colonies exist on the Cotswolds in Gloucestershire (e.g. Cleeve Hill) just south of the Worcestershire border.

11. Common Green Grasshopper, *Omocestus viridulus* (L.)

A widespread and locally common grasshopper which is, however, scarce in urban areas and regions that are intensively farmed.

WORCS: Headley Heath, Rubery Hill, 23.vii.1984; Frankley, roadside, vii.1984; Wyre Forest; Malvern Hills; Bredon Hill, 29.ix.1985.

WARKS: Geary's Heath, Coleshill Bog, 8.ix.1985; Edge Hill, viii.1984; Farnborough, viii.1984; Sutton Park; Solihull, Riverside Drive; Edgbaston, The Vale, slope by Ridge Hall, 2.vii.1980; Edgbaston, Vincent Drive, waste ground, scarce [Bickenhill Plantation, May 1990, nymphs].

STAFFS: Hollies Common, 11.ix.1985; Cannock Chase, Anson's Bank, Sycamores Hill, Satnall Hills, Penkridge Bank; Highgate Common, Forest Covert; Wyrley Common, 26.viii.1985; Pelsall Common; Chartley, dry field.

SALOP: Cramer Gutter, 2.ix.1984 and 17.viii.1985; The Wrekin; Whixall Moss; Cockshutford, 17.viii.1985; Cleobury North Liberty, 17.viii.1985;

Offa's Dyke, near Knighton, 27.viii.1985; Bomere, vii.1986; Long Mynd, Wild Moor and by gliding club 9.viii.1986; Plowden, 9.viii.1986.

12. Common Field Grasshopper, *Chorthippus brunneus* (Thunberg)

Generally common, except damper pastures and heaths. It is the only common grasshopper in Birmingham itself, where there are many large colonies on waste ground, roadsides, edges of carparks, railway land and canal cuttings.

WORCS: Selly Oak, by railway station; Stirchley, roadside; Lilford; Walker's Heath; Weatheroak Hill; Rednal, SO 997768 and SP 001760, ix.1981; Lickey Hills, SO 987757, ix.1981; Beacon Hill; Cofton Hill; Rubery Hill; Frankley, roadside; Randan Wood; The Four Stones, Clent Hills; Walton Hill; Hartlebury Common; Kidderminster Rifle Range; Wren's Nest; Malvern Hills; Trench Wood; Stourbridge, by railway, SO 909832, vii.1981; Turner's Hill, Darby's Hill; Winson Green; Sandwell, Bredon Hill.

WARKS.: Kingsbury Water Park; Whateley; Sutton Park; Solihull, Riverside Drive; Barber's Coppice; Bickenhill; Stonebridge; Geary's Heath; Bradnock's Marsh; Eastcote; Old Snowhill Station; Edgbaston -The Vale, SP 053847, x.1979; Vincent Drive; Birmingham University campus, SP 044835, x.1979, x.1980 and SP 044834, ix.1982; Queen Elizabeth Hospital, SP 041838, viii.1981 and SP 044838, ix.1982; Tredington, vii.1984; Little Compton, vii.1984; Long Compton, viii.1984; Traitor's Ford, viii.1984; Edge Hill, viii.1984; Farnborough, viii.1984; Burton Dassett, viii.1984; Stockton, Coleshill Bog; Brandon Marsh, ix.1983.

STAFFS: Dovedale (Daltry, 1933); Gorsey Leas; Alrewas; Burton-on-Trent; Weeford, Chartley; Cannock Chase - Spring Hill, Satnall Hills, Anson's Bank, Sycamores Hill, Abraham's Valley, Penkridge Bank; Wyrley Common; Chasewater; Pelsall Common; Whittington Heath; Doxey Marshes; Queensville; Broad Meadow; Kinver Edge; Halfpenny Green; Forest Covert; Highgate Common; Short Heath.

SALOP: The Wrekin, Long Mynd, near gliding club on roadside; Plowden.

13. Meadow Grasshopper, *Chorthippus parallelus* (Zetterstedt)

Generally common outside urban areas.

WORCS: Hopwood; Randan Wood; Chaddesley Wood; Fenny Rough; Bewdsley; Kidderminster Rifle Range; Malvern Hills; Trench Wood; Weatheroak Hill; Bredon Hill.

WARKS: Tredington; Little Compton; Long Compton; Traitor's Ford; Edge Hill; Burton Dassett; Stockton; Coleshill Bog; Sutton Park.

STAFFS: Churnet Valley; Chartley, dry field; Wyrley Common; Weeford. Norbury; Cannock Chase; Sher Brook (Clements, 1987).

SALOP: Whixall Moss; Cramer Gutter; Offa's Dyke, near Knighton; Brightall Common; Quatford; Bomere; Long Mynd; Wild Moor.

14. Lesser Marsh Grasshopper, *Chorthippus albomarginatus* (De Geer)

During the 1980s as a result of efforts of those contributing to the Warwickshire Orthoptera Survey, it has been realised that this insect is widespread and locally common in a variety of habitats in Warwickshire (Copson, 1984; Paul, 1984). The first 1980s record was from Brandon Marsh (SP 3875), near Coventry, where it was found by S. Lane. It would seem that the species has been overlooked, as Mr J.A. Hardman found a specimen in his collection with data: Warwick, 4.viii.1954. The Lesser Marsh Grasshopper is known from southern Worcestershire, but is unrecorded from Shropshire and Staffordshire.

WORCS: Marshall and Haes (1989).

WARKS: Records include: Warwick, 4.viii.1954, J.A. Hardman; Brandon Marsh, 27.viii.1982, S. Lane and 17.ix.1983, J. Paul; John Eastwood Farm, Stoneleigh Ley (SP 333707), 25.viii.1983, P. Copson; Newbold Comyn, Leamington Spa, grassland (SP 339653), 19.ix.1983, R. Gibb; Bypass embankment (SP 272668), x.1983, Myles Mackay; Little Wolford (SP 2633), 30.vii.1984, Paul Marriott; Ufton Fields, 7.vii.1984, J. Paul; Monkspath Meadow (SP 1475), 11.vii.1984, J.W. Lewis; Pillerton Hersey Home Farm (SP 297493), 12.viii.1984, Robert Pitt; Parkhill Coppice (SP 247517), 14.viii.1984, J.W. Lewis; Near Oaks Wood, C.A.D. Kineton, grassy, calcareous ride (SP 348488), 1.viii.1984, M.W. Finnemore; Stretton-on-Dunsmore, churchyard (SP 406726), 14.viii.1984, P. Copson; Bishopston (SP 189569), 13.viii.1984, Dave Musson; Bearley Bushes, scrubby woodland (SP 189604), 2.ix.1984; The Oaks, Kineton (SP 350490), 3.vii.1984, J.W.L., D.B., M.W.F.; Heath Farm, road verge (SP 225528), 14.viii.1984), J.W.L., D.B.

STAFFS: No record. I have made fruitless searches in likely-looking spots, such as Doxey Marshes and Queensville, near Stafford and Broad Meadow, near Tamworth.

SALOP: No confirmed record.

15. Mottled Grasshopper, *Myrmeleotettix maculatus* (Thunberg)

Midland colonies of this insect seem to be confined to heaths, peat moors and long-abandoned slag heaps. It is often found in association with other local species and is therefore a useful indicator of good habitat for scarce insects.

WORCS: Kidderminster Rifle Range (26.viii.1985; 10.vii.1987); Hartlebury Common (1985); Rubery Hill (23.vii.1984); Malvern Hills -North Hill, Linden, Herefordshire Beacon (vii.1984), The Gullet (4.vii.1987).

WARKS: Sutton Park, 18.ix.1982; Grendon Heath, J.D. Rhodes, 10.ix.1986.

STAFFS: Cannock Chase, 24.ix.1983 — Anson's Bank, Sycamores Hill, Satnall Hills; Penkridge Bank, viii.1984; Highgate Common, 25.ix.1982; Forest Covert; Kinver Edge, 25.ix.1982; Whittington Heath, 8.ix.1985; Wyrley Common, 26.viii.1985; Chasewater, 26.viii.1985; Pelsall Common, 6.ix.1985; Apedale (R. Hill, pers. com., 1990).

SALOP: Wixall Moss, 6.vii.1986; Cramer Gutter, 2.ix.1984 and 17.viii.1985; Prees Heath, 6.vii.1986; Wrekin; Alverley, slag heap, vii.1986; Clee Hill, 9.viii.1986; Long Mynd, 9.viii.1986; Plowden, 9.viii.1986.

(To be concluded)

Second brood *Spilosoma lubricipeda* L., the White Ermine (Lep.: Arctiidae) in Ayrshire

A single male of *S. lubricipeda* was caught in the Rothamsted Insect Light Survey (R.I.S.) light trap at Culzean Castle, Ayrshire (Site No. 264, OS grid ref. NS 235 095) on 10.ix.1990. This individual represents a partial second emergence: first brood moths were caught in the trap between 5.v. and 4.vii.1990. Reference to the R.I.S. database shows that *S. lubricipeda* usually flies between mid-May and mid-July at this site, though first brood individuals have been caught between 8.v.(1981) and 5.viii.(1979). Despite 15 years of continuous trapping at Culzean Castle, the only other instance of a second emergence is recorded on 5.ix.1975.

Skinner, B. (*Colour Identification Guide to Moths of the British Isles,* Viking, Harmondsworth, 1984) and others state that there is an occasional second emergence of this species. Examination of the R.I.S. database confirms this. From a total of over 40,000 *S. lubricipeda* records, there are 27 captures of second brood individuals. Apart from four Scottish records, three of which were during the hot summer of 1976, these are all from Wales and England south of Lancashire and Lincolnshire. Seven (approx. one third) were from Kent, Hampshire and the Channel Islands.

From these records it appears that bivoltinism in *S. lubricipeda* is unusual and occurs mainly in southern localities. In Scotland a second emergence is rare and usually restricted to hot summers such as 1976 and 1990. Continued monitoring of bivoltinism in this species may reveal responses to predicted climatic change.

Thanks are extended to G. Riddle for operating the trap at Culzean Castle.— ADRIAN M. RILEY, AFRC Farmland Ecology Research Group, Dept. Entomology and Nematology, Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

REMINISCENCES OF AN AMATEUR LEPIDOPTERIST 1920-1990

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(Continued from page 124)

Much of the plain surrounding Baghdad was mud desert, subject to annual inundations, rather unproductive entomologically, so I took every opportunity at weekends and holidays of seeking more stony terrain, particularly the low hills through which the Dyala flowed north of the city, where a sojourn in the tent of two English surveyors, Meade and Woram, distracted them from their isolated boredom, and enabled to take back more interesting specimens. Friends in Kurdistan also sent specimens of the vernal fliers.

I met Robert Ellison during my 1936 summer-leave. Our exchanges eventually led me to the Royal Entomological Society's 1939 *Lepidoptera of the Lebanon* from our joint pens, Tams' assistance having played a vital part in its production.

I sent Edward Meyrick, at Marlborough, my Lebanese and first Kurdish Pyrals and Micros; he produced some prompt results in *Exotic Microlepidoptera 5*: 18-142 (1936-7); but in 1937 I sent Amsel my Iraqi material and in 1939 my Iranian Pyrals and Micros. His published results did not appear until 1949.

References (Part 5)

Amsel, H.G., 1949. On the microlepidoptera collected by E.P. Wiltshire in Iraq and Iran in the years 1935 to 1938. *Bull. Soc. Fouad 1er entom.* **33**: 271-351.

Ellison, R.E. and Wiltshire, E.P., 1939. The Lepidoptera of the Lebanon: with notes on their season and distribution. *Trans. R. Ent. Soc. London,* **88**(1): 1-156, with 1 pl.

Hamilton, A.M., 1937. *Road through Kurdistan.* Faber and Faber, 256 pp., 28 plates, 2 maps.

Seitz, A., 1931-38. *The macrolepidoptera of the world.* **3**, sup. 233 pp., 26 plates.

— , 1934-54. *Grosschmetterlinge der Erde,* **4**, sup., 766 pp., 53 plates.

Wiltshire, E.P., 1937. Autumnal lepidoptera in Kurdistan: preliminary notes on some excursions in the Rowanduz Chai valley, Iraq. *Ent. Rec. J. Var.,* **49**: 91-94, 107-109.

6. Further acquaintance

During my 1936 leave the realisation dawned on me that it would take some time to determine all my material from the Middle East, a part of the world not as well represented then as were most other parts of the world, in the BMNH.

It appeared that some *Earias* which I had bred from poplars at Baghdad were unknown.

"Won't you describe it for me?" I asked Tams.

"Just now," he replied, "I haven't the time; there is no reason why you shouldn't describe it yourself;" then he added: "if you're careful."

Tams later passed my first effort at describing a new species to Riley and it appeared in *The Entomologist* in October 1936. A decent illustration had to wait until I figured several forms of *Earias irakana* in a colour plate in my much later book on Iraq (1957).

I had broken the ice but was still diffident about describing new species from my own material. In one or two subsequent cases I would describe a strange form as a sub-species of some similar known species, only to have to publish a later correction demonstrating the true specific character. In the late 'thirties I had not yet acquired the expertise that gives confidence in such puzzles. I first started using a microscope in New York in 1944 thanks partly to having been given a monocular microscope by a medical cousin, and partly by meeting in that big city other entomologists to advise and encourage, which in Iraq and Iran had to be done by post, and without any local facilities. My first binocular microscope was a secondhand Zeiss acquired in Cairo in 1946. Here again there were facilities, colleagues and an entomological society. But I anticipate unduly . . .

Of course the mere acquisition of a microscope does not automatically solve all the problems.

Comparing one's specimens with labelled specimens in good collections is a first step for all collectors, but already in 1936 I realised that identifications are based ultimately on original type specimens preserved more carefully than all others; the author having had these types before him when writing the original description. So besides the obvious educational purpose of our Museums, of providing information for the public, a more vital one is to conserve and study the types and other material, such as original manuscripts and drawings, a sort of back-room function.

Trained officials in Museums, with rich comparative material, have described thousands of species but left undescribed many others, for lack of time, due to curational, administrative and such duties. The untrained amateur can help science by following the correct procedure in referring to original types or descriptions, and with experience may become honorary associates such as Collenette and Evans whom I found working together with Riley and Tams in the 'thirties. Ultimately museums come to own most surviving original types, as private collections seldom remain in the hands of the heirs of those who have built them up. Such collections are more scientifically important, the more types of recently described species they contain; perfection of presentation and the length of the series of each species are of secondary importance, despite their desirability.

I passed through Paris on my way back to the Middle East in 1936, and met Charles Boursin at the Natural History Museum there. I had already received many helpful letters from him. He introduced me to his colleagues there, among whom LeCerf helped me with Iraqian Sesiids and Cossids. At

Boursin's suggestion I started to subscribe to the Munich entomological society's Mitteilungen, as its members were already active in the Middle East. They were pleased to publish in 1939 my third "Early stages" article, mainly describing caterpillars found in the Baghdad poplars and tamarisks. Its plate showed the difference in larval pattern of the Iraqi *Cerura,* now known as *C. vinula irakana* Heyd. & Schulte, from the British puss-moth, the typical *C. vinula* (L.) and joy of my boyhood as mentioned in my first chapter. A similar difference, between two Spanish *Cerura* was much later depicted by Templado & Ortiz, 1970, figs. 1 - 4. Does *C. iberica* T. & O. in this respect diverge from *vinula* and converge to *C. v. irakana* because of environmentally similar influences? As there is no simple answer to that question, I will leave it unanswered here.

Two Baghdad forms of *Nola* were the subject of an enquiry I addressed in 1936 to Georg Warnecke of Kiel, whose thoughtful work had come recently to my attention.

While my correspondence was daily widening in this manner, using my car when on home-leave enabled me to do field-work en route. Returning home in 1936 I revisited some old haunts in the Lebanon and also Bludan in the Anti-Lebanon range; and in the autumn I deviated northwards from Beirut to proceed eastwards along the IPC pipe-line, spending nights at the Palmyra and Haditha pumping stations, both of which provided supper, a comfortable bed and bright lights that attracted autumnal desert moths such as *Chondrostega fasciana feisali* Wilts, which flew there at the end of September. After crossing the Euphrates, I turned north and revisited Mosul and Diana for a few days; to the latter I was accompanied by the newly-appointed Consul, Grafftey-Smith. Coming from Cairo, he must have been amused by the thatched roof, and bare trunks supporting it, over the veranda of the Diana Vice-Consulate; at any rate its photo appeared in his book of reminiscences written in retirement; and of course, the trip supplied further problems for Boursin, Amsel and others to solve.

One spring weekend in 1937 I drove out south-westward from Baghdad to the more southerly, but gravelly, desert west of the Euphrates towns of Kerbela and Nejf, where I also had official contacts protecting British -Indian Shi'a pilgrims. Jock Diamond was an amusing Glaswegian driller, whom I had met in 1935 when he was drilling water-wells for the Shammar nomads in the desert west of Mosul. Since then his wife had joined him, having decided to curb his excessive generosity. Jock now had a larger tent and bed, and was no less hospitable to me than two years before. Entomologically, too, the visit was a success, especially as Jock continued to send me specimens, from his drilling site, well into the summer of 1937. Boursin, at my behest, named one of the discoveries there *diamondi* in his honour. Mr and Mrs Diamond continued to prosper, and became well-known in an Alwiya bungalow in the capital.

Bytinski-Salz, having transferred from Germany to Italy had started

Jock Diamond at Habbarivah, Iraq

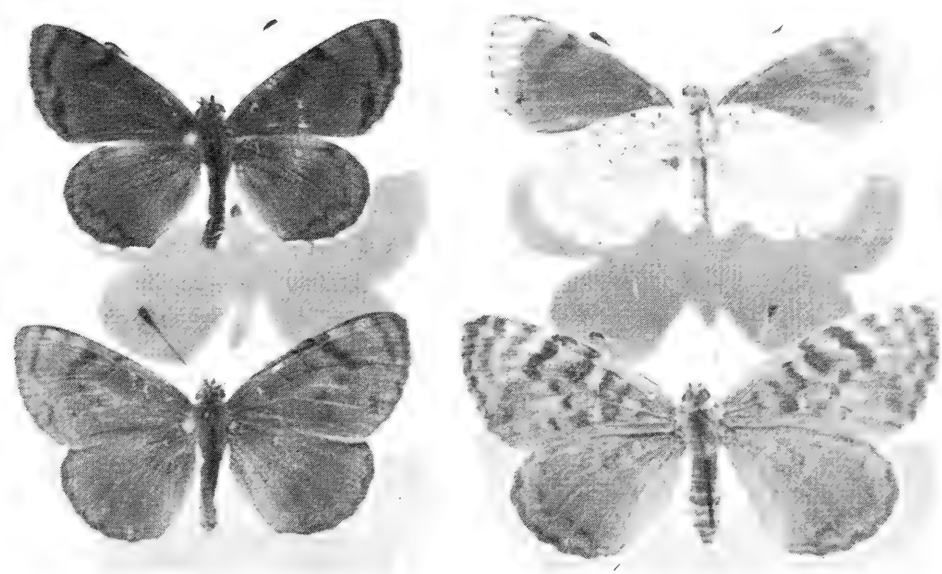
helping a certain Wilhelm Brandt to describe his new species from Northern Iran. The article, without illustrations, appeared in the *Entomologists' Record* from 1937 onwards. Brandt himself wrote to me later that year, about his brother Fred who was collecting somewhere in S. Iran. I myself was posted to Tehran late that year; and I shall have more to tell of the Brandt brothers, and some others of the above correspondents, in later chapters.

I had started learning Persian under Tahir Qureishi, the Baghdad Consulate's Protector of Pilgrims, and on reaching Tehran found that I was a "stepney-wheel" (as Jack Finch expressed it), liable to be sent to scattered British Consulates in Persia, during their officers' leaves. During 1937-8 I acted in Tabriz (a winter stay), then Ahwaz with its mountain station, Hamadan, after which I took a home leave in winter 1938-9 and left the boxes of that long summer's catches with my mother at Gorleston; during my visits to London my contacts gave me the impression that war with Hitler was almost inevitable despite Chamberlain's little trip to Munich while I was at Ahwaz. It was at the end of my acting spell in summer 1939 in Tehran that war in fact broke out. I acted that winter in Kermanshah, and in April was transferred to Shiraz, which I found the most attractive of all these posts. It confirmed my love for Persia and its people. Their history has been full of vicissitudes. Recent developments have shewn this too painfully.

At first, after the declaration of war, Iran was fully neutral, and British and German nationals continued to live and work normally; after two or three years, however, the Anglo-Russian military intervention took place, to protect the passage of munitions and motor transport which the newly constructed railway from the Gulf to the Caspian providentially expedited. Our German acquaintances were then mostly rounded up and sent off to Australia.

Wilhelm Brandt, of German extraction but holding an Esthonian

passport and residing in Finland, was a neutral. For three years we consulted each other on entomological problems and he sent me his reprints with details of Fred's 1938 "ausbeute". Good though my own catches at Ahwaz and Hamadan had been I could see from these details that Shiraz was in a class of its own; for instance Fred had taken five different species of *Melitaea* near there, including *M. casta* Koll. on the top of Barm-i-Firuz, near Ardekan. To my amazement I was able to add three apparently new species of *Melitaea* in my first three months at Shiraz. I sent



Melitaea casta Koll. Topotypes from Kuh Barfi, Shiraz.

papered examples of one or two to Henry Turner and Norman Riley. The latter was in touch with Lionel Higgins, and told me that Lionel had a more comprehensive knowledge of this genus than any other lepidopterist. I photographed all eight of the Fars *Melitaea* forms and when sending these to Riley mentioned the boxes left at Gorleston. He arranged for these to be transferred from my home to the Castle Museum, Norwich, and eventually Higgins was able to see them, but not in time for illustration in his 1941 catalogue. In an addendum to his 1955 article the three forms of *M. casta* were illustrated, and Brandt's Barm-i-Firuz race appeared as "transitional" between the Alvand and the typical Kuh-i-Barfi (Shiraz) race, though I had suggested the name *brandti* for it. All three mountain peaks are completely isolated from each other.

References (Part 6)

Brandt, W., 1938-9. Beitrag zur lepidopteren-fauna von Iran. *Ent. Rundsch.* 55, 56.
Bytinski-Salz, H., & Brandt, W., 1937. *Entomologists' Rec. J. Var.,* **49** (5 & 6-7): sups. 1 - 9.

Grafftey-Smith, L., 1970. *Bright Levant*. John Murray, 295 pp.

Higgins, L., 1941. An illustrated catalogue of the Palearctic Melitaea. *Trans. R. ent. Soc. Lond.* **91**: 175-354, 16 pls., 214 figs., 7 maps.

Higgins, L., 1955. A descriptive catalogue of the genus *Mellicta* Billberg and its species with supplementary notes on the genera *Melitaea* and *Euphydryas*. *Trans. R. ent. Soc. Lond.* **106**(1): 1-131, 2 pls., 4 maps, 88 figs.

Templado, J., & Ortiz, Y.E., 1970. Caracteres comparativos entre *Dicranura vinula* (L.) y *Dicranura iberica* Templ. et *Ort. Eos,* **45**: 335-347, 17 figs.

Wiltshire, E.P., 1936. A new species of *Earias* Hbn. *Entomologist* **69**: 239-240.

— , 1939. A third contribution to the knowledge of the early stages of Oriental Lepidoptera. *Mitt. Münch. ent. Ges.* **29**(1): 4-12, pl. 1.

— , 1957. *The Lepidoptera of Iraq*. 162 pp., 17 pl., Kaye, London; and Min. Agric., Govt., Iraq.

7. The Indian Connection

Lads of the Indian Political Service still staffed the Residency at Bushire in the early forties; Shiraz was their "hill station" and they rented a garden next to the Consulate. Geoffrey Prior, the Resident, suggested I might be interested to subscribe to the Bombay Natural History Society, a name I knew from that book on the *Fauna of Iraq* picked up at Baghdad.

I carried out his suggestion which was a stroke of luck for me. I married in Tehran in 1942 on transfer to a new post, but the critical juncture of the war in May of that year made travel to England out of the question while communications with India were easy.

After a day or two in Karachi waiting for a plane, we reached Bombay and spent a week there. Prater, the Society's secretary, showed me over their rooms in Apollo Street ("Hornbill House"); as editor he had already published my articles of 1941 describing *Melitaea* new forms and new moths from S.W. Iran; now the precious types were in his custody and he promised to look after them until further orders. I had received news of my next post: Basra, and I thought the Society's rooms in Bombay a safer place. Thus reassured I took my wife on a honeymoon trek in Kashmir, an unforgettable experience. In spite of the threat to India on the eastern frontier, this part's touring facilities and agencies were still ticking over like clockwork. Some ten years later I wrote a narrative of the trek incuding some wonderful scenic photos and dealing with the general natural history of that part of the Himalayas.

So my second spell in Iraq began in the extreme south and I investigated the Shatt al Arab date-growing zone and the desert in the direction of Kuwait. For two months, over Christmas 1942, however, I had to act as Consul again in Mosul.

(to be continued)

ADDITIONAL NOTES ON MELANIC SPECIMENS OF THE SILVER-WASHED FRITILLARY (*ARGYNNIS PAPHIA* L.) IN NORTH DORSET.

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AN EARLIER article (Barrington, 1989) discussed the relation between maximum daily temperature at the time of pupation of *A. paphia* and the subsequent capture of melanic aberrations. A clear correlation was found suggesting that such aberrations are due to unusual heat acting on the newly formed pupa. The last year referred to in the previous article was 1986. The present contribution covers the exceptional summer of 1989.

The 1989 season

Nineteen-eighty-nine was remarkable for the continuously higher than average temperatures and lack of rainfall, although the record-breaking heat of 1976 was not matched. In North Dorset *paphia,* which had been represented by fewer specimens in 1987 and 1988, did well in 1989. The warm weather brought *paphia* out a week to ten days early and the whole season for this species was over very quickly (in about ten days), presumably due to the high levels of activity in the heat, and the shortage of nectar-giving plants which were badly affected by the very dry conditions. Two melanic forms were found, both extreme.

The 8th July was a very close, hazy day. Most *paphia* were freshly emerged and fair numbers were seen feeding on thistles (much of the bramble flower was already over or dried up). A very dark specimen was seen landing on a thistle some distance away and was successfully captured. It proved to be an extreme male ab. *nigricans* Cosm. (fig. 1). The following day was cooler and breezy. At a nearby location Ross Young saw, perched high on a bramble bush, a melanic specimen which evaded capture as his net snagged on a thorn, but was seen and captured from the same spray the next afternoon. This was a fine male ab. *confluens* Spuler (fig. 2); both specimens were in perfect condition. No further aberrations were seen.

Results: In accordance with the format in the previous study, daily, maximum shade temperatures in degrees centigrade (for June and early July) are given in Table 1. All days above 21°C are marked with a ●. Previously, the period during which pupation would have occurred was taken as 23 - 33 days prior to capture of aberrations in newly-emerged condition. Applying this to the 1989 specimens gives pupation dates of 5th -16th June. This includes five days (the last five days of the period) above 26°C. Given the generally high temperatures subsequent to 16th June, during which the insects would have been in the pupal stage, it is likely that this stage would have been shorter than normal. In this case pupation could have taken place any time during the spell of exceptionally hot weather from 12th - 20th June.

JUNE 1989			
Date	*Temp.*	*Date*	*Temp.*
1	14	20	● 30
2	16	21	● 23
3	15	22	● 24
4	17	23	● 25
5	16	24	● 25
6	14	25	● 23
7	17	26	● 23
8	14	27	18
9	19	28	16
10	19	29	19
11	● 21	30	● 21
12	● 26	JULY 1989	
13	● 26	1	18
14	● 26	2	● 22
15	● 28	3	● 25
16	● 27	4	● 27
17	● 28	5	● 28
18	● 28	6	● 27
19	● 29	7	19

Table 1. Daily maximum shade temperatures. Marked days indicate temperatures in excess of 21°C.

As with the results of the earlier article it can be seen that capture of melanic specimens of *paphia* was preceded by a spell of unusually high temperatures over the period when the larvae would be pupating.

It is of interest that, by keeping an eye on daily temperatures and making an estimate of how early the *paphia* season would be, we estimated the weekend (collecting time being largely restricted to weekends) when melanics might be expected to occur, if at all. The two specimens were observed over the predicted weekend and none thereafter. Whilst such a prediction requires more than a little luck it does suggest that following the weather patterns may be an aid to entomologists interested in variation in this species (and doubtless other Nymphalid species and some Lycaenids, particularly *Lysandra coridon* Poda, in which similar temperature-related bursts of variation have been noted (Russwurm, 1976 a and b)).

Acknowledgements

I am grateful to Ross Young for allowing me to photograph another fine aberration and to Dave Vincent, Mary Clacy and Dan Hodgson who each supplied sets of temperature records for this study.

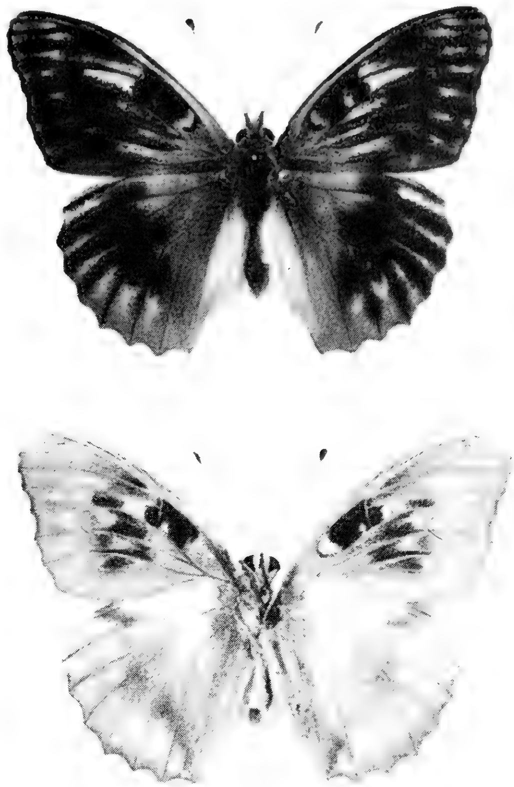

Fig. 1. *Argynnis paphia*. Male ab *nigricans* Cosm.
Top: upperside, bottom: underside. North Dorset 8.7.1989 (RDGB).

Fig. 2. *Argynnis paphia*. Male ab *confluens* Spuler.
North Dorset 10.7.1989 (R. Young).

References

Barrington, R.D.G., 1989. Melanic aberrations of the Silver-washed Fritillary (*Argynnis paphia* L.) in North Dorset in 1986, and the relevance of temperature on the occurrence of such forms in the wild. *Entomologist's Rec. J. Var.* **101**: 267-274.

Russwurm, A.D.A., 1976a. Variation in *Lysandra coridon* Poda (Lep.: Lycaenidae). Summer 1975. *Entomologist's Rec. J. Var.* **88**: 81.

— , 1976b. Aberrations of *Lysandra coridon* Poda (Lep.: Lycaenidae) and other species. Summer 1976. *Entomologist's Rec. J. Var.* **88**: 305.

Corrections:

From the previous article on *paphia* two errors require correction. On page 267, line 4, read 1918/19 between 1881 and 1941. Page 267, line 31, instead of (0 - 20°C) read (0 - minus 20°C).

Rothamsted farmland light trap network: interesting Lepidoptera records for August 1990.

Continuing our monthly reports of unusual Lepidoptera from the network of light traps operating on the Rothamsted Estate, the following are particularly noteworthy for August 1990:

Five individuals of *Drepana cultraria* Fabr. were caught during the first half of August. This species has not previously been recorded on the Estate. Interestingly, the first brood was absent from the traps.

Extra broods were a notable feature of the August records, probably resulting from the unusually hot, dry summer. *Asthena albulata* Hufn. and *Idaea subsericeata* Haw. were caught on the 4th and 5th and 18th respectively. Both are known to produce occasional second broods in southern England. A single *Hydrelia flammeolaria* Hufn. was caught on the 3rd. This species is usually univoltine, flying in June and early July. It is possible that this individual represents a partial second emergence. A few individuals of *Ectropis bistortata* Goeze were caught in some of the traps during the last week of August. The normally expected first and second broods are clearly represented at some sites between mid-March and mid-May and mid-June and the end of July. These late captures appear to represent a partial third brood.

A few known migratory species were recorded. These include *Agrotis ipsilon* Hufn., *Autographa gamma* L. (including f. *gammina* Stdgr.), *Peridroma saucia* Hb., *Nomophila noctuella* D. & S., and *Udea ferrugalis* Hb. Also, a specimen of *Eupithecia nanata* Hb. was caught on the 20th. There is no apparently suitable habitat for this species in the immediate vicinity, and it is possible that this individual originated from cultivated heathers in gardens surrounding the farm.— ADRIAN M. RILEY and MARTIN C. TOWNSEND, AFRC Farmland Ecology Group, Department of Entomology & Nematology, Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ.

BRACHYSOMUS HIRTUS (COL.: CURCULIONIDAE) REDISCOVERED IN SURREY, WITH A NOTE ON ITS ECOLOGY

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IN BRITAIN, *Brachysomus hirtus* (Boheman) is a rare beetle which has been recorded on very few occasions in recent times. Some years ago, my friend Mr A.A. Allen gave me two representative specimens which had been taken by the late Philip Harwood many years ago and were labelled Westerham. They lack dates but Mr Allen tells me that the specimens were probably taken in the early 1920s.

Having never found the species, I wondered one day if it could still be found in this locality. The habitat given in Fowler (1891) is "chalk hill sides, in moss etc." and reference to the O.S. map suggested the south-facing chalk escarpment about a mile to the north of Westerham as a good place to start looking. My wife and I went there on 6.iv.1990. Presumably because of the dryness of the preceding year, there was little moss to be found on the open chalk slopes but we found a plentiful supply on the ground a few metres inside a dense thicket lower down the escarpment. About 30 handfuls of moss mixed with dead leaves, small dead twigs and a little granular surface soil were shaken in a bag-sieve and the sievings brought home and put into a Winkler extractor.

Twenty-four hours later, two examples of *B. hirtus* appeared in the extractor and another four appeared after a further 24 hours. Subsequent visits to the spot with colleagues during the next few weeks showed that the beetle was very plentiful at the site with a minimum estimated population in one part of the area of 4 - 8 specimens per square metre. Another lot of sievings taken on 30.i.1991 contained further examples of the beetle.

The town of Westerham is in Kent near the western county boundary but, just to the north of the town, the county boundary runs to the north-east and the part of the escarpment where we found the beetle was in Surrey. I have found only one other certain Surrey record, that of Champion (cited by Fowler, 1891) who took a single specimen last century at Caterham. W.E. Sharp (cited Fowler & Donisthorpe, 1913) took the species at Westerham prior to Harwood's captures and it may be that Harwood was directed to his Westerham site by this reference. If, as seems likely, these two collectors found their specimens from the chalk slopes to the north of the town, the record could apply to Surrey or to Kent as the county boundary runs through the chalk escarpment at this point.

Elsewhere the species has been recorded from Arundel, West Sussex (Stevens, cited Fowler, 1891), Cobham Park (Walker, 1890) and Chatham (Walker, 1898), Kent, Southampton, Hampshire (Walton cited Fowler, 1891), Chesam, Buckinghamshire (Elliman, 1899), Henley-on-Thames (Power cited Fowler, 1891) and the Chilterns (Woodroffe, 1966),

Oxfordshire and Gumley, Leicestershire (Mathews cited Fowler & Donisthorpe, 1913).

While the habitat — chalky hillsides — given by Fowler is literally correct, many authors have stated or implied that the beetle occurs in or at the edge of wooded areas on chalk, as in the present instance, rather than on open, grassy chalk slopes. Walker (1898) recorded finding a number near Chatham by shaking a small hornbeam branch and from dry leaves "accumulated round the stumps of underwood" at the edge of a coppice and he cited Bedel (Faune de Coléoptères du bassin de la Seine, 6, 237) finding the species in dead leaves in woods. Elliman (1899) reported that he had found three specimens by sifting dead leaves in a wood at Chesham in 1896 and many others by the same technique two years later. He found the beetle was distributed "for a very considerable distance along the border of this wood which is situated on chalk and has a southern aspect;." Woodroffe (1966) found one example each of *B. hirtus* and *B. echinatus* (Bonsdorf) in litter under a hawthorn bush in an area of scrubby chalk grassland in Oxfordshire.

In this country, the beetle has traditionally been linked to primrose (*Primula vulgaris* L.) though the evidence is circumstantial and the beetle may well prove to be a root feeder. Pellerin (1870) described how he found a specimen in a bunch of primroses tied up with moss which he had purchased for sixpence. Interestingly, Fowler (1891) also refers to a specimen found in a primrose root bought in a London market giving the finder's name as Mr Douglas. Walker (1898) reported that primroses were plentiful where he found the beetle. Where we found the beetle at Westerham, the ground cover was mainly moss, mixed with dead leaves and small twigs. The few higher plants present (*Glechoma hederacea* L. *Veronica chamaedrys* L. and small shoots of *Rubus fructicosus*) were estimated to provide less than 5% of ground cover. There were no signs of primrose plants though there were cowslips (*Primula veris* L.) on the open slope above the thicket. The latter comrpised mainly hawthorn (*Crataegus monogyna* (Jacq.), dogwood (*Thelycrania sanguinea* (L.) Four.), sallow (*Salix* spp.) and clematis (*Clematis vitalba* L.).

As far as the time of appearance of adults goes, the majority of records have been in the colder part of the year, i.e. from late October (Walker, 1898) to April (Pellerin, 1870; present findings). There is a single record for the latter part of May (Woodroffe, 1966) and Walker (1890) swept two examples on a "very hot, damp evening in July, along with *P. echinatus.*"

B. hirtus is readily distinguished from *B. echinatus* on the characters given by Joy (1932). In the field, a hand lens reveals the pronotum of *hirtus* to be uniformly dark grey whereas in *echinatus* the pronotum has an obvious band of the light coloured scales at the side. Curiously, Fowler (1891) ascribes the light scales at the sides of the pronotum in error to *hirtus* though his descriptions are otherwise correct.

References

Elliman, E.G., 1899. *Brachysomus setulosus,* Boh., at Chesam, Bucks. *Entomologist's mon. Mag.* **35**: 44-45.
Fowler, W.W., 1891. *The Coleoptera of the British Islands,* **5**: 193.
— , & Donisthorpe, H.St.J., 1913. *The Coleoptera of the British Islands* **6** (Suppl.): 306.
Joy, N.H., 1932. *A practical handbook of British Beetles,* London.
Pellerin, G., 1870. Capture of *Strophosomus hirtus* Schon., Walt. *Entomologist's mon. Mag.* **7**: 37.
Walker, J.J., 1874. Recent captures of Coleoptera near Chatham. *Entomologist's mon. Mag.* **10**: 252-253.
— , 1890. Coleoptera at Cobham Park, Kent. *Entomologist's mon. Mag.* **34**: 9-11.
— , 1898. *Brachysomus hirtus,* Boh., (*Platytarsus setulosus,* Boh.) at Chatham. *Entomologist's mon. Mag.* **34**: 17.
Woodroffe, G.E., 1966. Some uncommon Coleoptera from the Oxford Chilterns. *Entomologists mon. Mag.* **102**: 118.

Notes on the voltinism of *Hylaea fasciaria* L., Barred Red (Lep.: Geometridae)

A single male *H. fasciaria* was caught in the Rothamsted Insect Survey (R.I.S.) light trap at Beinn Eighe, Wester Ross (Site No. 350, OS grid ref. NH 024 629), on 24.x.1990. The normal flight period at this site is from mid-June to early August. In 1990 it was recorded from 13th June to 3rd August.

Skinner, B. (*Colour Identification Guide to the Moths of the British Isles,* Viking, Harmondsworth, 1984) and others state that *H. fasciaria* is univoltine, flying from mid-June to early August. However, South, R. (*Moths of the British Isles,* Warne, London 1961) states that it is sometimes found in September, as well as June and July, suggesting a partial second emergence in some years. Reference to the R.I.S. database, in which there are records of 462 individuals of *H. fasciaria,* supports South's comments and reveals the following information on the voltinism of this species.

The main flight period is from early June to late July or early August at nearly all sites where this species occurs. Records of second emergences are usually rare and have been noted at Fort Augustus, Inverness (Site No. 49, OS grid ref. NH 366 092) on 22.x.1978; Elgin I, Morayshire (Site No. 58, OS grid ref. NJ 160 636) on 10.x.1979; Elgin II, Morayshire (Site No. 457, OS grid ref. NJ 164 635) on 13.x.1986, and Stratfield Mortimer, Berkshire (Site No. 16, OS grid ref. SU 650 645) on 9 and 14.x.1975. Individuals of a second emergence have been recorded at a site in more than one year only at Kielder, Northumberland (Site No. 296, OS grid ref. NY 632 936) in 1985 and 1986 and Santon Downham, Suffolk (Site No. 259, OS grid ref. TL 816 876) in 1975, 1979, 1983 and 1986.

These records show that *H. fasciaria* occasionally produces a partial second adult generation but the frequency of this occurrence is difficult to assess. However, the species is relatively common at five of the seven sites mentioned above. This may suggest that recording a partial second

emergence is dependent on the abundance of the species at the trapping site. Further observation is required to clarify this.

Records from the R.I.S. trap on Guernsey (Site No. 252, grid ref. 49° 26.2'N, 2° 34.3'W) and Jersey (Site No. 146, grid ref. 49° 14'N, 2° 5.5'W) indicate that the flight period on the Channel Islands is somewhat different to that in mainland Britain. At the Guernsey trap, in which the species is more commonly caught than at Jersey, it is consistently recorded between early July and early October, though occasionally the flight period is from early June to early September. Individuals occur randomly throughout the flight period but, at these sites, are always few. Further recording on the islands, where the samples are larger, may reveal interesting observations on the phenology of this species.

Climatic change may affect the phenology of *H. fasciaria* in the future but the frequency of bivoltinism and the factors influencing it should be assessed more thoroughly in the meantime.

Thanks are extended to the operators of the traps mentioned in this article for their continued co-operation.—ADRIAN M. RILEY, Dept. Entomology & Nematology, AFRC Farmland Ecology Research Group, Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

The Magpie Moth in North-west Scotland

B.K. West's article on the status of *Abraxas grossulariata* L. (*Ent. Rec.* **103**: 89) was of considerable interest to me. This is a common and widespread moth, associated with heather and bog myrtle in the coastal regions and inshore islands of N.W. Sutherland and Wester Ross, from the Applecross peninsula clockwise to the Kyle of Tongue (an area I have covered annually since 1964 while leading small parties of our Highland Safaris). The 10km squares where noticed are NG 74 (Applecross), NG 85 and 95 (Torridon), NG 96 and NH 06 (Loch Maree), NG 78 (Melvaig), NB 90 (Tanera More, Summer Isles), NC 13 and 23 (Drumbeg and Kylesku district), NC 14 (Handa RSPB island reserve and Tarbet), NC 15, 25, 26, 27, 37, 36 and 35 (Sandwood Bay, Cape Wrath peninsula, Durness to Loch Eriboll) and NC 56 (Melness).

In 26 years I have found none more than a few miles inland and only a single specimen in the east — this near Strathpeffer (NH 45) on 1st August 1975. This species is sometimes very common as on 16th July 1985 along the scenic Ardmore path, near Rhiconich, and on 5th July 1986 at Melvaig, north of Gairloch, but the most remarkable mass emergence was on the cloudy bright afternoon of 3rd July 1984, when many hundreds were flying or at rest on heather along the peat-cutters' track leading inland from Loch Drumbeg.

The flight period in the Highland Region is from 29th June (1978) to 15th August (1986).— DEREK C. HULME, Ord Drive, Muir of Ord, Ross-shire IV6 7UQ.

THE DISTRIBUTION AND OCCURRENCE OF *ACANTHOCINUS* DEJ. AND *AGAPANTHIA* SERV. (COL.: LAMIIDAE) IN THE BRITISH ISLES

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ALPHABETICAL symbols used are explained in Kaufmann (1989). Italicised letters signify species which are widespread throughout the county/vice-county; bracketed ones require modern confirmatory evidence; a dagger (†) indicates introduced or fortuitous specimens.

Acanthocinus aedilis L.

If one ignores its subfusc, admirable protective coloration, *Acanthocinus,* the Timberman Beetle, is without doubt the most spectacular Longhorn of our indigenous fauna, because the antennae in the male are some five times, that is, up to 10cm long, the length of its body, if rather shorter but still extraordinarily long in the female. At rest the antennae are usually held at right angles to the body, traling behind it when the beetle flies.

The species is one of the three exclusively Scottish longicorn Coleoptera; it turns up, however, and continues to do so with great regularity in many counties elsewhere in Great Britain and Ireland, being exported southwards principally in pit props and logs.

Distribution is centred mainly in the older forests of the Scottish Highlands, but the beetle is also established in some Lowland counties. As is the case with a number of our other Cerambycids and Lamiids, *A. aedilis* is now in danger of being over-collected and has become scarce.

SCOTLAND: AS AY† BF BW† ED† EI EL KF KI LA† LL OI† PE PM PN RF RX.

Many adventitious specimens have been found in mines, sawmills and wood merchants' yards in

ENGLAND: BK CH CU *DM* DT DY EN (ES) EX GE HF L LN LR MM MY *ND* (in softwood timber cargoes washed ashore from wrecked ships) *NM NN* NO NS OX SE SH *SL SN* SR *ST* SY WC WN (WS) WY

WALES: CM GM

IRELAND: AN DU.

A 1989 television programme on the flora/fauna of the ancient Caledonian Forest showed momentarily *A. aedilis* successfully thwarting an attack by foraging black ants: to see a live British beetle at all on the "box" is an event in itself!

The larva is found principally under the bark of trunks, branches, roots and stumps of dead or dying trees such as larch, Scots pine, silver fir and spruce, but there is an unusual record from alder logs; and abroad, it has been reported as a pest infesting stricken *Panolis flammea* (Klausnitzer & Sander, 1981).

The many Hymenopterous parasites to which the larva is host include *Bracon praecisus* Ratz., *Coelobracon initiator* Nees, *C. neesi* Marsh, *Coeloides abdominalis* Zett., *C. initiator* F., *Doryctes imperator* Hal., *D. pomarius* Rein., *Ephialtes mesocentrus* Grav., *E. tuberculatus* Fourcr., *Iphiaulax impostor* Scop., *Neoxorides collaris* Grav., *Poemia notata* Holmgr., *Sichelia filiformis* Grav. and *Xorides irrigator* F.

Larvae and pupae are capable of resisting long periods of immersion in sea water (Bartlett, 1918; Duffy, 1953).

It seems that pupation happens twice annually: once, in summer, eclosion taking place in August and September, when the adults emerge into the open to dry off — their antennae take several days to harden; and again, later in October, in which event the pupa, or if metamorphosis is completed the perfect insect, will over-winter. Adults and lately ecloded beetles thereafter appear as early as March in the following year. It is possible, therefore, to find newly formed pupae and imagines under the bark of the same parent tree well into the autumn and winter. The life cycle in consequence may extend from one to two years.

The cutting down of large tracts of forest has undoubtedly led to the dispersal of the beetles from the neighbourhood; this is encouraging, for they are not regarded as particularly injurious insects, nor do they attack healthy conifers. Provided that so beautiful a species is not too zealously pursued and captured its future in Britain seems secure.

Acanthocinus enjoys basking in the sun and will settle on stumps and piled logs. It was known to all our early entomologists and was first depicted here two centuries ago (Martyn, 1792).

Agapanthia villosoviridescens Deg.

The range of this very attractive non-lignicolous Longhorn is principally easterly, but distribution does extend centrally through the Midlands to include a few Home and more westerly counties. There are no records from elsewhere in the British Isles.

ENGLAND: BD BX *CB* ES *EN* (GW) HT *HU* LN *LR* NM NO *OX* SH (ST) WK WN WS WW WY

This beetle is one of our only two Lamiids which are herbicoles, its larva developing in these herbaceous plant stems:— Blessed Thistle, *Carduus* sp., *Chrysanthemum,* Hellebore, Hemp Agrimony, Hogweed, Marsh Ragwort, Marsh Thistle, Monk's Hood (also *Aconitum anthora*), Mugwort, Nodding Thistle, Rough Chervil, Stinging Nettle, Wild Angelica, Wild Parsley, Wild Parsnip and Yellow Loosestrife.

The larvae eat their way downwards from the top of the plants, hollowing the stem as they go, sometimes as far as the roots, where they pupate.

Metamorphosis lasts from one to two years. After eclosion the adults crawl up the host plant to browse in the flowerheads; they rarely leave the

former to fly to other blossoms, although they have been beaten off willows and sallows.

The beetle is very wary and on approaching danger drops instantly into the usually dense herbage below where it is difficult to find. When captured it stridulates and also emits a smell which has been likened to that of a snuffed out candle.

Agapanthia is found from April onwards until October. Formerly regarded as rare, although Fowler (1890) recorded taking it in very large quantities, there is modern evidence indicating that it is slowly spreading and quite common in certain localities. Adults are perhaps best found shortly after dawn when the flowers are still covered with dew.

Wider distribution of this distinctive beetle, with its heavily patterned yellowish body pubescence and villous limbs and antennae, is unlikely to be encouraged by the wholesale mowing of grass verges and meadows where thistles and *Heracleum* proliferate.

Known as *A. lineatocollis* (Donovan, 1797) in most of our earlier lists, *Agapanthia* eventually appeared under its present specific name of *villosoviridescens* in the Hudson Beare catalogue of 1930. Donisthorpe (Fowler & Donisthorpe, 1913) draws attention to a melanic form of the beetle which occurred at Wicken Fen, Cambs, in 1899, now in his cabinet at the Natural History Museum, Kensington. The National Collections also contain a similar black variety found by Revd C.E. Tottenham in 1929 in the same locality.

Acknowledgements

Grateful thanks for their information are expressed to A.A. Allen, Esq, Miss I. Baldwin, Royal Scottish Museum, Dr M. Darby, Dr P.S. Hyman, D.R. Nash Esq, Prof. J.A. Owen and Mrs S.L. Shute, Dept of Entomology, British Museum (Natural History).

References

Aurivillius, C., 1923. Lamiinae in Junk, W. & Schenkling, S., *Coleopterorum Catalogus,* **74**: 428-429; 464. Berlin.

Bartlett, C., 1918. *Acanthocinus aedilis* L. in N. Devon, *Entomologist's mon. Mag.,* **54**: 137-138.

Beare, T. Hudson, 1930. *A catalogue of the recorded Coleoptera of the British Isles.* London.

Bílý, S. & Mehl, O., 1989. *Longhorn Beetles (Coleoptera, Cerambycidae) of Fennoscandia and Denmark.* Leiden and Copenhagen.

Chinery, M., 1986. *Insects of Britain and Western Europe.* London.

Cooter, J. & Cribb, P.W., 1975. *A Coleopterist's Handbook.* 2nd ed. Feltham.

Curtis, J., 1837. *A guide to the arrangement of British Insects,* Coleoptera: **71.** 2nd ed. London.

Demelt, C. von, 1966. *Die Tierwelt Deutschlands,* **52**: 2. Bockkäfer oder Cerambycidae, **1**. Jena.

Donovan, E., 1793. *The natural history of British Insects,* **2**. London.

Duffy, E.A.J., 1953. *A monograph of the immature stages of British and imported Timber Beetles (Cerambycidae).* London.
Fowler, W.W., 1890. *The Coleoptera of the British Islands,* **4**. London.
— , & Donisthorpe, H.St.J.K., 1913. *Ibid.,* **6** (Supplement). London.
Fraser, M.G., 1949. *Acanthocinus aedilis* L. (Col.: Cerambycidae) imported into Liverpool, Lancs, *Entomologist's mon. Mag.,* **85**: 18.
Freude, H., Harde, K.W. & Lohse, G.A., 1966. *Die Käfer Mitteleuropas,* **9**. Krefeld.
Hansen, V., 1966. Biller, 22. *Traebukke Danmarks Fauna.* Copenhagen. (Text in Danish.)
Harde, K.W., 1984. *A field guide in colour to Beetles.* English ed., Hammond, P.M. London.
Hickin, N., 1987. *Longhorn Beetles of the British Isles.* Princes Risborough.
Joy, N.H., 1976. A practical handbook of British Beetles. 2 vols. 2nd ed. Faringdon.
Kaufmann, R.R. Uhthoff-, 1948. Notes on the distribution of the British Longicorn Coleoptera, *Entomologist's mon. Mag.,* **84**: 66-85.
— , 1948. An annotated list of the Scottish Longicorn Coleoptera, *Proc. R. Phys. Soc. Edin.,* **23**(2): 83-94.
— , 1989. Browne *versus* Watson: Round two. *Entomologist's Rec. J. Var.,* **101**: 61-63.
Klausnitzer, B. & Sander, F., 1981. *Die Bockkäfer Mitteleuropas.* Wittenberg Lutherstadt.
Kloet, G.S. & Hincks, W.D., 1977. *Check list of British Insects,* **11**(3), Strepsiptera and Coleoptera: **71**. London.
Kontkanen, P., 1929. Zur Biologie der *Acanthocinus aedilis* L. *Ann. Soc. zool. bot. Vanamo,* **8**: 66-77.
Lyneborg, L., 1977. *Beetles in colour.* English ed., Vevers, G. Poole.
Marsham, T., 1802. *Entomologia Britannica,* **1**. Coleoptera. London.
Martyn, T., 1792. *The English Entomologist,* tab. 26, fs. 24-25. London.
Murray, A., 1853. *Catalogue of the Coleoptera of Scotland:* 84. Edinburgh and London.
Planet, L-M., 1924. *Histoire naturelle des Longicornes de France.* Paris.
Rye, E.C., 1866. *British Beetles.* London.
Samouelle, G., 1819. *The Entomologist's useful compendium.* London.
Scherer, G., 1988. *Beetles of Britain and Europe,* pl. 56, English ed. Longman Group, Harlow.
Stephens, J.F., 1929. *A systematic catalogue of British Insects:* 197; 199. London.
— , 1831. Illustrations of British Entomology, *Mandibulata,* **4**. London.
— , 1839. *A manual of British Coleoptera.* London.
Villiers, A., 1978. *Faune des Coléoptères de France,* **1**. Cerambycidae. Paris.
Wilson, J. & Duncan, J., 1834. *Entomologia Edinensis.* Coleoptera: 270. Edinburgh.
Winkler, A., 1929. *Catalogus Coleopterorum regionis palaearcticae,* **10**: 1211; 1213. Vienna.

The second generation of *Scopula imitaria* (Hübn.) (Lep.: Geometridae)
Further to B.K. West's note (*Ent. Rec.* **102**: 109) on occasional bivoltinism in this species, it may be of interest to note the occurrence of a single example in my garden m.v. trap on 7th September 1989. The specimen is markedly smaller and darker than the normal form.— I.V. Beavis, 104 St James' Road, Tunbridge Wells, Kent TN1 2HH.

NATIONAL REVIEW OF THE RECORDING AND CONSERVATION OF THE RARER BRITISH MACRO-MOTHS

PAUL WARING

Joint Nature Conservation Committee, Monkstone Hosue, City Road, Peterborough PE1 1JY.

THERE HAS been no nationally co-ordinated approach to moth recording since 1982, when the moth recording scheme operated by the Biological Records Centre (BRC) at the Institute of Terrestrial Ecology, Monks Wood, closed down following the retirement of the scheme organiser, John Heath. In spite of this the level of moth recording has increased greatly. Hundreds of the original contributors to the BRC scheme are still recording and their ranks have been swelled by a much larger number of moth-trappers who have taken up the interest or developed proficiency since the 1970s. In the absence of a national recording scheme, local and country-based initiatives have proliferated, sometimes organised by private individuals often based on a local natural history society, local recording centre or county naturalists' trust.

Light traps are also operated on over sixty reserves belonging to the Royal society for the Protection of Birds (RSPB) and by the staff of other conservation organisations on nature reserves and elsewhere. In addition the Rothamsted Insect Survey, with nearly one hundred light traps throughout Britain, has continued monitoring moth populations since the 1960s. The result is that a huge amount of data on moths is being collected annually. In some counties this has been marshalled into recent county lists. In other counties the information is simply filed as and when it is sent in. For a recent overview of the national status, distribution, habits and habitats of the macro-moths, we must turn to Bernard Skinner's excellent Identification Guide (Skinner, 1984) which provides a brief and general summary for each species. Heath and Emmet (1976 onwards) will provide greater detail and distribution maps but this work will not be completed for some years and the early volumes are already more than ten years old.

For various reasons it has not been possible to revive the national BRC moth recording scheme to date. Meanwhile the demand for up-to-date information on moth distribution continues, particularly in conservation circles. A great deal of money and staff time is now being spent on defending and managing nature reserves and other places to benefit wildlife and moths, butterflies and other invertebrate groups are being recognised as valuable indicators of the condition of habitats and of the consequences of different types of management, with the result that information is regularly sought from us.

In January 1991 a National Review of the recording and conservation of the rarer British macro-moths was launched by the Nature Conservancy Council (NCC), with the co-operation of BRC, to collate existing information and the results of current moth recording efforts to enable

more effective use of these data for conservation purposes. I shall be in charge of this project as part of my duties in JNCC's species conservation branch and funding for the project currently exists until March 1992.

It is clear from visits to local recording centres and county recorders that moth records outnumber those of any other invertebrate group. To marshal the potentially overwhelming amount of available data in the time available the aims and products of this Review have been defined in very precise terms and are as follows:

1. To prepare and circulate an up-to-date address list of county moth recorders and biological records centres so that a moth worker operating anywhere in Britain knows where to send records. This directory and notes in relevant journals will be used to promote all existing county-based recording initiatives.
2. To link all county recorders and local biological records centres into a national moth recording network to handle the data in the following way:
    a. Moth workers (i.e. light trap operators, hunters of larvae or anyone who regularly records moths) to be encouraged to send all moth records and correspondence in, on a county basis to the relevant county moth recorders and the entomological press. The county recorder will check incoming information for unusual or odd records, confirm them where necessary and process them in his or her usual way. A number of independent observers will be asked to comment on the network and its operations and products as a further check on quality.
    b. Biological records centres not already in touch with county recorders have been asked to make contact to inform them of the extent of their activities, any facilities they can offer and records they hold.
    c. The national review will identify and concentrate on macro-moth species which are known from less than 100 of the 10km grid squares in Britain (which is less than 3% of the grid squares). County moth recorders and biological records centres have been circulated with a provisional list of such nationally scarce species (based on Hadley 1984) and have been asked to forward only records of these species to me, together with suggestions of any other species they would like to see considered for inclusion. The list comprises just over 250 species.
    d. The network will be used to review and revise the above short list based on the number of post-1979 records known to the county recorders. Existing gradings into Red Data Book (Shirt 1987) and National Notable categories will be tested and adjusted if necessary. Other categories for moths which tend to be restricted to particular habitats may be introduced at a later date.

Products of the review will be:

1. Up-to-date directory of county moth recorders and local biological records centres.
2. Up-to-date distribution maps of the nationally scarce species, showing 1980s records on a 10km square basis.
3. A revised list of Red Data Book and Nationally Notable species, defined on the basis of (1) above.
4. An up-to-date inventory of all other 1980s records of RDB and notable species on existing ISR sites. It will be possible to arrange and print out this information by site or by species.
5. A booklet detailing the Red Data Book and Notable species present on National Nature Reserves.
6. A data sheet per species including statements on habitat requirements and conservation needs as far as is known.

Provision exists for dealing with any records which a moth recorder may need to submit in confidence. Such records can be labelled on the computer database so that they do not print out and can be omitted from the distribution maps or "moved" into a nearby 10km square.

All the county recorders and I would be most grateful if lepidopterists who have recorded macro-moths in the 1980s could send in their records to us if they have not already done so. (Note that, in principle, any records previously sent to any NCC office should be reaching me via our regional staff and any records sent to the Rothamsted Insect Survey or the Biological Records Centre at Monks wood will be passed to me and do not need to be sent in again.) A provisional version of the directory of addresses of county recorders and local records centres and a provisional list of the Red Data Book and Notable macro-moths are now available to all interested in moths. For these please send a self-addressed A4 sized envelope bearing a 41p stamp to me at the JNCC, Monkstone House, Peterborough PE1 1JY. Moth records are best sent direct to the relevant county recorder. If you have records from many counties and do not wish to send them separately then send them all direct to me and I shall forward them. If your records are very extensive and there is no chance of getting them all sent off by mid summer 1991, I would be grateful if you could extract the top priority records i.e. 1980 - 1990 records of the provisional RDB and Nationally Notable species, and send them direct to me. The format for all records should be:

> Species, vice-county or modern county, site name, six figure grid reference, reference of 10km square, date of record, numbers seen, recorder, identifier if different, reference if published e.g.: *Plagodis pulveraria,* Oxon v.c.23, Waterperry Wood, SP607095, SP60, 1984, 1985 and 1986. Several including larvae on hazel (*Corylus avellana*), P. Waring, see Waring P. 1988. Hazel as an important larval foodplant of the Barred Umber *Plagodis pulveraria* (Lep.: Geometridae), *Entomologist's Rec. J. Var.* **100**: 135-136.

Draft non-confidential versions of distribution maps, the guide to moths on NCC reserves and data sheets will be issued to all county moth recorders and records centres in February 1992 in whatever state they have reached, and will be available on request to any other contributor of records. News concerning the progress of the Review between now and February 1992 will appear in circulars to county recorders and via the *Entomologist's Record* and *British Wildlife* magazine.

Acknowledgements

I would like to thank all those who have been associated with the Invertebrate Site Register (ISR), in particular Alan Stubbs and Ian McLean for their foresight and planning in setting up the ISR and for keeping it running over the last decade, often in difficult circumstances. Special thanks are due to Stuart Ball for assembling and developing the software which allows us to file, sort, retrieve and map records of invertebrates in an efficient manner. I would also like to thank all the recorders and records centres who have agreed to support the Review and who are working, often in their spare time, to process the records, and all the moth recorders for their support of John Heath's scheme and for their patience in transferring and adjusting to this new scheme. Thanks in advance to all lepidopterists who decide to support this Review. The success of the project will ultimately depend on your thoroughness and speed in replying to our requests for 1980s records and it cannot take place without you.

References

Hadley, J., 1984. *A national review of British macrolepidoptera.* Nature Conservancy Council (Invertebrate Site Register, unpublished report 46).

Heath, J., Emmet, A.M. et. al., 1976 onwards. *The moths and butterflies of Great Britain and Ireland,* Vols. 1, 2, 7, 9, 10 (others to be published).

Shirt, D.B. (ed.), 1987. *British Red Data Books:* **2.** Insects. Nature Conservancy Council, Peterborough.

Skinner, B., 1984. *Colour identification guide to moths of the British Isles.* Viking. Harmondsworth, Middlesex.

Sparganothis pilleriana D. & S. (Lep.: Tortricidae) in North Wales

Except for an old record from Glamorgan v.c.41 pre 1905, this species is found in the southern counties of England. I have seen a pale species of Tortricid several times near Llandudno v.c.49 and eventually took this species on the Great Orme (SH7583) on 29.vi.90. The larva is polyphagous on various plants and is injurious to grape vines in Europe. *Clematis vitalba* was growing near where the moth was found and may be the local foodplant.— H.N. MICHAELIS, 5 Glan-y-Mor, Glan Conwy, Colwyn Bay LL28 5TA.

PROTECTED BRITISH BUTTERFLIES: INTERPRETATION OF SECTION 9 AND SCHEDULE 5 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

ALAN E. STUBBS

Chief Scientist Directorate, Nature Conservancy Council.

THE CONSERVATION of Wild Creatures and Wild Plants Act 1975 gave full protection to the Large Blue butterfly. There was no ambiguity. Taking, killing or injuring of specimens in the wild or any form of trading was illegal unless authorised by means of a licence issued by the Department of the Environment who consulted the Nature Conservancy Council before issuing licences.

This Act was succeeded by the Wildlife and Countryside Act 1981 which gave full protection to a wider list of invertebrates listed in Schedule 5. The Large Blue was joined by the Heath Fritillary, the Chequered Skipper and the Swallowtail. As a result of widely expressed concern over the scale and nature of trading, NCC subsequently recommended in its Quinquennial Review of Schedule 5 in 1986 that the trade in twenty-two scarce species of native butterflies be permitted only under licence. The purpose was to monitor the trade, without affecting an individual's wish to take animals for personal study. The same review recommended that the Chequered Skipper should no longer be afforded full protection. Instead it was placed on the list of species requiring a licence before being sold. This demonstrated the flexibility of the legislation to afford species only the legal protection which their status in the wild warranted.

The recommendation relating to these 22 species had to be implemented through an Order made by the Secretary of State for the Environment which came into effect on 28th June 1989. Implementation is carried out by the Department of the Environment's Wildlife Division in Bristol.

There have been many doubts and some inconsistencies, in the interpretation of the 1981 Act in relation to both the fully protected butterflies and the additional 22. In order to clarify the position DoE wrote to NCC to help clarify the situation for everyone.

"1. *Except for those which are captive-bred, all specimens of species of butterflies listed on Schedule 5 of the Wildlife and Countryside Act 1981 are covered by the relevant provisions of the Act regardless of stage or country of origin.*

2. *Consequently, sale of any specimens of the 22 partially protected and three fully protected species is illegal unless:*
   - a. *the specimens were bred in captivity or*
   - b. *a sale licence issued by the Department is held."*

[**Note:** Following the split of NCC in April 1991, enquiries should be addressed to Dr. S. Ball, Joint Nature Conservation Committee, Monkstone House, Peterborough PE1 1JY.]

The following points need emphasis.

— It is illegal to take in the wild (even to net and immediately release) the three fully protected species without a licence. It is legal to *capture* all other British butterflies but responsible entomologists will of course recognise the need not to damage wild populations in doing this.

— "Wild" butterflies, i.e. those whose sale is restricted, are defined as butterflies which were, before they were taken, living wild. Note that this applies to wild-taken eggs, larvae and pupae as well as adults and to any bred on stage of a wild-caught individual (but not to its offspring).

— No licence is required to sell captive-bred stock.

— It is the full nominate species that is covered by the Act. Foreign wild-caught specimens require a licence to trade even if they are of a non-British sub-species.

— In any prosecution, the butterflies would be considered to be "wild-taken" unless *the trader* can show irrefutable evidence to the contrary. The maximum fine per specimen (even an egg) is £2,000.

— The word "sale" includes hire, barter, exchange etc.

The exact wording of the relevant part of the Wildlife & Countryside Act (Section 9(5)) is as follows:

"If any person—

> *sells, offers or exposes for sale, or has in his possession or transports for the purpose of sale, any live or dead wild animal included in Schedule 5, or any part of, or anything derived from, such an animal; or*
>
> *publishes or causes to be published any advertisement likely to be understood as conveying that he buys or sells, or intends to buy or sell, any of those things*

he shall be guilty of an offence."

In conclusion, this legislation has two purposes. First to ensure that wild populations of the three fully protected species remain safe from any collecting or trading. Secondly to monitor trading of the 22 scarcer species. Examples of unscrupulous exploitation may be few, but those that do occur need firm action. Responsible traders have no cause for alarm, indeed through the licensing system their critics will be fairly answered. It is the unacceptable elements of trading which will be most affected by the law.

NCC is confident that the vast majority in the entomological community will abide by these controls and help to ensure that others abide by them also.

This note has been agreed by DoE and is published so that all concerned have the same set of guidelines.

List of butterflies on Schedule 5 of the Wildlife and Countryside Act 1981 with respect to the provisions of Section 9(5) (Sale etc) only.

Argus, northern brown	*Aricia artaxerxes*
Blue, adonis	*Lysandra bellargus*
Blue, chalkhill	*Lysandra corydon*
Blue, silver-studded	*Plebejus argus*
Blue, small,	*Cupido minimus*
Copper, large	*Lycaena dispar*
Emperor, purple	*Apatura iris*
Fritillary, Duke of Burgundy	*Hamearis lucina*
Fritillary, Glanville	*Melitaea cinxia*
Fritillary, high brown	*Argynnis adippe*
Fritillary, marsh	*Eurodryas aurinia*
Fritillary, pearl-bordered	*Bolaria euphrosyne*
Hairstreak, black	*Strymonidia pruni*
Hairstreak, brown	*Thecla betulae*
Hairstreak, white letter	*Strymonidia w-album*
Heath, large	*Coenonympha tullia*
Ringlet, mountain	*Erebia epiphron*
Skipper, chequered	*Carterocephalus palaemon*
Skipper, Lulworth	*Thymelicus acteon*
Skipper, silver-spotted	*Hesperia comma*
Tortoiseshell, large	*Nymphalis polychloros*
White, wood	*Leptidea sinapis*

Fully protected butterflies on Schedule 5

Blue, large	*Maculinea arion*
Fritillary, Heath	*Mellicta athalia* (otherwise known as *Melitaea athalia*)
Swallowtail	*Papilio machaon*

Social Wasps *Vespula* spp. attacking *Aeshna* hawker dragonflies and Silver Y moth *Autographa gamma* L. (Lep.: Noctuidae)

Early in 1989, I was asked by the editor of the BBC *Wildlife Magazine* to write an answer to a question from a reader, Mr Ashley Cox of Hemel Hempstead, Hertfordshire, concerning his observation, on 10th August 1988, of a social wasp *Vespula* sp. (Hym.: Vespidae) apparently making a frenzied attack upon a Migrant Hawker dragonfly *Aeshna mixta* Latreille (Odon.: Aeshnidae) which had fallen, struggling, on the lawn in his garden. In my published reply *BBC Wildlife* **7** (1989): 226, I remarked that I had not personally witnessed such an attack on a large dragonfly and had also been unable, in the time available, to find any references of similar attacks in the literature. Recently, however, I chanced to come upon a note of mine, which I had long forgotten, published under the Wildlife and Tame

Column in *The Countryman* magazine (**82** (1977): 179), about a wasp *Vespula* sp. attacking a Southern Hawker *Aeshna cyanea* (Müller) with a damaged wing which I had repaired one day in August, 1976, placing the dragonfly on an unused bird table to recover.

Also by chance, when searching through my natural history journals for something else, I came upon another forgotten observation of mine; this time of a wasp *Vespula* sp. which attacked a fresh Silver Y moth *Autographa gamma* L. which was feeding from ivy blossoms in the grounds of Broadcasting House in Bristol on 17th September 1982. In the space of five minutes, it removed all the moth's wings, except for one of the hindwings, and then cut it up and flew off with the whole of its head and thorax, leaving only the abdomen. By the time it had completeed its butchery, the wasp was almost entirely covered with the moth's greyish-brown scales.— JOHN F. BURTON, Wasserturmstrasse 53, W-6904 Eppelheim, Germany.

The Swallowtail (*Papilio machaon*) and Large Copper (*Lycaena dispar batavus*) at Wicken fen.

I fear that in his interesting reminiscences in the March/April issue of *The Record,* Mr E.P. Wiltshire was either singularly unfortunate in not coming across either of these butterflies when he visited Wicken Fen between 1928-32 or he has confused the locality or dates he visited, for both species were then present on the fen during the 1930s and there was certainly no need to go off to the Norfolk Broads for Swallowtails at that time. In 1927, the year before he came up from Cambridge, Swallowtails were "in considerable numbers" on the fen and "flying in the cottage gardens" (Demuth, 1984 *Entomologist's Rec. J. Var.* **96**: 264-272).

I first visited Wicken Fen in 1941, ten years later than Mr Wiltshire, and at this time Swallowtails were still on the fen and in the cottage gardens but, like so many other things then, they were rationed. The allowance, stated on my permit, being six specimens (of any stage) per year. Armed with this permit I found plenty of larvae, but having then no means of supplying them with food back at my "digs", I confined myself to catching a couple of adults, which was no easy task.

When I again visited the fen in 1946 Swallowtails were still to be seen and found as larvae but after the great floods of 1947 they were gone by 1950. It was in 1954 that the first re-introduction attempt was made.

The Large Copper subspecies *batavus* was introduced to Wicken in 1930 and survived there until 1942. It seems very probable that its demise then was due to the disturbance of ploughing and draining part of Wicken for wartime food production. I do not remember seeing it there in 1941, but this would not have been easy in any case, for it was largely confined to the southern area known as Adventurers Fen, accessible only by boat or swimming for it.— BRIAN O.C. GARDINER, 2 Highfield Avenue, Cambridge CB4 2AL.

THE DISTRIBUTION MAPS OF THE BRITISH MICRO–LEPIDOPTERA: A SERVICE FOR LEPIDOPTERISTS

A.M. Emmet

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IN *The Moths and Butterflies of Great Britain and Ireland* the distribution of the Microlepidoptera is shown by maps constructed on a vice-county basis. Apart from a very few that are extinct or lack claim to their place on the British list, every species has its map. There are about 1500 species of Microlepidoptera in Britain and maps for the first 400 have already been published in Volumes 1 and 2. However, these printed maps, especially those in Volume 1, are now out of date; many species have twice the number of vice-county records and some more than three times. As an example, the map in MBGBI 1 for *Stigmella atricapitella* (Haworth) shows 29 vice-county records; now there are 92. These additional records have been plotted on a set of manuscript maps.

For the remaining 1100 species, distribution maps are already in existence for all families except the Pterophoridae, and their maps should be available before this article is printed. Most authors for MBGBI make the preparation of the maps their first task, since they learn much about each species in the process. They conduct a thorough search of the literature and often come upon valuable information concerning behaviour or the early stages. They scan collections, especially those held by museums, frequently encountering interesting misidentifications. They badger their fellow entomologsts for their records, often a very profitable enterprise. For two consecutive years I showed the distribution maps for the Coleophoridae at the Annual Exhibition of the British Entomological & Natural History Society and this resulted in my receiving over 700 new vice-county records for the family, many of them for the common species entomologists seldom bother to include in their lists. As an example of the coverage, *Coleophora serratella* (Linnaeus) is now recorded from every vice-county in mainland Great Britain except v.c.109; Irish records, however, are still very sparse.

The maps are there but it will be many years before all of them are published.

Readers get impatient at the slow rate at which the volumes of MBGBI appear. They should remember that it took Haworth 25 years to produce the four volumes of *Lepidoptera Britannica* and it took Ochsenheimer and Treitschke 29 years for *Die Schmetterlinge von Europa;* moreover, in the early 19th century there was less to be said about each species. There is so much demand for the information given on the maps that it seems desirable to make it accessible before publication. This has been made possible by having all the maps duplicated. The master copy remains with the MBGBI author and the duplicate is lodged with me as editor. An added advantage is that new entries can now be made on either map. Many collectors send

me their records and in the case of the less diligent authors my own entries far exceed theirs. I write the data for each entry on the back of the map and at intervals the authors and I can scan each other's maps and bring them up to date.

An entomologist requiring information has only to write to me. Currently or in the recent past compilers of lists for 17 counties have been in touch with me to the mutual benefit of both parties. One county still in the early stages of preparation sent me their computerised list comprising 416 species of Microlepidoptera; to these I was able to add another 469 species and in return I received from them 158 new records for their two vice-counties. In the case of another county, too, I was able to double their total. The maps also show which species on their list are outside their normal range. Such records are not necessarily based on mis-identification, but the probability is that that is the case; if the specimen is extant it can be re-examined and if necessary dissected. Some records, like those of *Agonopterix cnicella* (Treitschke) and *Epischnia bankesiella* Richardson from an inland county in eastern England, can be summarily dismissed. Many county recorders have a limited knowledge of entomological history and when, for example, they encounter a record for a species that has changed its name like *Crambus pratella,* it is all too easy for them to assign it wrongly. This is another area where I can help.

The individual collector can also make use of the service I can offer. If he has taken a rare species, he can check with me whether it is a new county record and if he wants the full distribution for a paper he is preparing, he has only to ask. Recently in one of the journals, I read "New to Scotland"; my maps show two prior unpublished Scottish records.

The MBGBI maps are not a substitute for county lists. They give only a single voucher record for each vice-county, or occasionally a second where an early record has been updated. The data accompanying the record is often of value in drawing attention to a useful source or in giving the name of a collector who has worked the area and may have other information to offer. I should point out that for many families I have only the information on the face of the map and if an inquirer needs the source of a record I have to instruct him to write to the relevant MBGBI author. Inevitably, the source of some of the records has been lost.

My motive in establishing the service the duplicate maps make possible is to elicit more records from *you*. The more comprehensive the maps are, the greater their value. I have already pointed out the importance of recording common species as well as those that are rare. In the past, macro-lepidopterists used to send their records to the Biological Records Centre at Monks Wood; if microlepidopterists send their records to me, as some do already, our knowledge of distribution will be quickly extended. The two least-well recorded counties in England are Northamptonshire (v.c.32) and Leicestershire (v.c.55); do you have records of either of them?

A MIGRATION OF LEPIDOPTERA IN SOUTH DEVON, AUTUMN 1990

P.J. BAKER

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AT FIRST, our journey to Branscombe in South Devon on Saturday 29th September did not seem propitious. Traffic on the A303 was heavy as were the showers which came on with increasing frequency the further west we travelled. When at long last we arrived at our destination the showers had coalesced into a continuous downpour — much to the delight of the local populace who were welcoming the first rain in four months. We grockles viewed the lowering skies and sodden vegetation with less enthusiasm and had fleeting thoughts of a rapid return to the desert conditions of Surrey next day.

To celebrate our arrival the rain eased long enough for us to get installed in our accommodation without getting drowned. An hour later, fortified with a pot of tea, the recommencing rain did not seem so bad and, anyway, it was remarkably warm for the time of year. So, after donning shorts and track shoes, enough driftwood was collected to build a platform on the nearby cliff face, on which a light trap was installed. Towards midnight a myopic glance at the trap showed something which, from a distance, looked like an out of focus stone or caddis fly. Closer inspection produced an *Utetheisa pulchella* (L.), never before seen but instantly recognised — and there was this hapless author, minus spectacles and with all the gear in the car parked some fifty yards away. The necessary trip to and from the vehicle, including a detour to collect the keys, was covered in record time and a beautiful Speckled Footman was secured. Even one's wife was impressed enough to remark that it was nice to see something, stated to be a bit special, which looked a little different. Next morning the trap contained, apart from the usual local residents, a couple of dozen each of *Agrotis ipsilon* (Hufn.) and *Autographa gamma* (L.), and five *Udea ferrugalis* (Hübn.). Whilst clearing up, a second *U. pulchella* was found on a nearby wall and a third, which was flushed up, flew off into the wild blue yonder.

Sunday the 30th continued very warm with showers which increased towards dusk. At Beer, *Pieris brassicae* (L.) was seen to be regularly coming in from the sea — say one every five minutes or so — and then heading in a generally easterly direction overland. This presumed migration was conspicuous for the whole of our stay in the area and was noted over a front which extended from Sidmouth in the west to Lyme Regis in the east, whenever flying conditions seemed good and even when they did not, such as at dusk and even in quite heavy rain. Several *Vanessa atalanta* (L.) and a *Cynthia cardui* (L.) were also noted flying to the east but these were not seen to come in from the sea.

That night back at Branscombe was very warm and muggy. Much time was spent hovering around the light with the obvious in mind but to no avail. An early arrival was *Agrius convolvuli* (L.) together with a vast number of *A. ipsilon, A. segetum* (D. & S.), *Peridroma saucia* (Hübn.) and *A. gamma,* about twenty *U. ferrugalis* and ten *Nomophila noctuella* (D. & S.). Next morning the trap held a single *Rhodometria sacraria* (L.) and a second *A. convolvuli* with a third being found later at the lights of the nearby public toilets. When the trap was cleared a very small moth was buzzing around in the empty case and proved impossible to box until it settled in a very characteristic posture with its wings, like a pitched roof, over its abdomen. Completely unknown to me, it was boxed with bated breath and — much later — was identified as the Pyralid *Hellula undalis* (Fabr.) This insect was first recorded from East Prawle, some forty-five miles to the south-west, in 1967 and has been subsequently noted in very small numbers from other spots along the south coast. The weather continued very much as yesterday and a non-entomological visit to Budleigh Salterton produced large numbers of *P. brassicae* and about as many *P. rapae* (L.). These were seen everywhere and especially about the municipal flower beds. Many were noted on the wing but no particular movement pattern was obvious.

Back at Branscombe in the afternoon the dog, whilst chasing a rabbit, flushed an *U. pulchella* from bracken. This flew quite slowly and steadily in a straight line for some one hundred meters before settling on the vegetation once more. Was this the specimen which got away a couple of days earlier? Heavy rain at dusk was not promising and things were very quiet at first before giving the best night so far. The common species previously seen were present in ever greater numbers and four forms of *A. gamma* were obvious. A large brightly marked form, one slightly smaller and less clearly marked, two specimens of the melanic form and about ten *A. gamma gamina* (Stgdr.). *N. noctuella* was also present in two forms, one with dark markings on a lighter ground and the other more unicolorous. Three *R. sacraria* with very red cross lines were seen with new species *Mythimna vitellina* (Hübn.) and two *Heliothis armigera* (Hübn.).

And that was the end of play . . . almost.

Tuesday 2nd October gave longer brighter periods with a sharp drop in temperature and the wind round to the east. The night was at first clear with a superb full moon and rain later. The light produced fourteen *A. ipsilon,* singletons of *A. gamma* and *P. saucia* with a second *H. undalis,* which made the landing back to earth more gentle. The rest of the week gave an even brighter moon, stronger easterly winds and four moths at two lights on the Thursday. Still, it was a memorable holiday which we plan to repeat in 1991 in the hope that our visit will once again coincide with a mass exodus from the Continent.

Reference

Goater, P.J.B. (1986) *British Pyralid moths.*

Hazards of butterfly collecting — the Monarchs of Mexico, December 1990

After concluding some business in Mexico City, I began to organise a visit to the winter roosts of the Monarchs (*Danaus plexippus*) with some trepidation. Due to the influx of Xmas tourists a car proved almost impossible to get hold of. My advance information was patchy and contradictory. I was assured that if I survived the predations of the traffic police (said to collect twice their pittance of a salary in spurious fines) then I would fall prey to bands of marauders (do not resist was the general advice). Chances that I would return with either of my two cameras were not rated high. In addition, I would not be able to see the Monarchs because of cloud, but that was anyhow academic, since any meal out of a five star hotel in Mexico City would give me a case of Montezuma's revenge which would preclude my reaching the site. In fact, much better once again to see the excellent National Geographic film about the Monarchs.

I am, fortunately, quite used to this kind of talk and decided to go ahead, though still with some nervousness. After all, car hire for two days, no information on local hotels, no working knowledge of Spanish, etc, is a fairly hefty investment of risk, time, and resources. And suppose it were to be a disappointment — like the shock my wife received when she saw how tiny was the famous Little Mermaid in Copenhagen? Would it be worth it? Would I even be able to find the site?

From the little villages of Ocampo and Angangueo some rather atrocious roads wind up to the Monarch roost, but my little Mexican-built VW Beetle devoured them with the same pleasure as my old Beetle did the Lebanese roads longer ago than I care to think about. We were going up from 2,000 to about 3,000 metres and during an hour's drive saw but three Monarchs, despite the fact that it was a clear day which was warming up nicely.

Suddenly I was among the Monarchs. As the car drove up the last bit of road towards the forest, thousands of Monarchs cascaded down, their wings two thirds open, with hardly a movement. Where two rivulets joined a minor tornado of Monarchs danced exuberantly. This activity increased in density and intensity as I edged further towards the forest and parked my car. Monarchs were everywhere, smothering flowers, but especially coming to pools of water in vast numbers. This was it. I need not have worried. I had seen nothing yet.

As I entered the forest the tall pines (*Abies religiosa*) were festooned with basking Monarchs, their wings open, warming up for flight. Thousands were flying down the mountain towards the open land below, though they never move more than a few kilometres from the roost. The ground was littered with Monarchs still not warm enough to fly. But the real sight covers a swathe of pines perhaps 200 by 200 metres, a bit further up the mountain. Here, in denser forest where little light penetrates the closed canopy, are the real roosts, at an altitude of 2,800 - 3,100 metres. Every pine tree is covered in Monarchs, quite literally, to the extent that not a

green pine needle can be seen. From the air it would look like a very sick patch of pines in a sea of green. It has been estimated that the roost contains some 35 million butterflies; I make that about a thousand per square metre. It is quite mind-boggling!

As the day heats up and as the sun begins to penetrate the main roosts, the trees become increasingly orange, as many individuals open their wings to bask, eventually to fly off. The whirring of millions of wings is a constant background noise. When there is no sun the Monarchs cannot fly. Their roosts are chosen in an area where the ambient temperature ranges from 2 to 12 degrees centigrade; their dense clustering is a defence against those occasional days when there is frost, as well as to deter predators.

As usual, no defence is perfect. The forest floor is littered with Monarch bodies and wings. Two species of birds and a mouse have managed to adapt to the powerful alkaloids which deter most predators. However, the best estimate is that 90 percent of these winter visitors survive, and hail storms account for more of the mortality than predators do.

There are three main roosts, each with 30 - 40 million Monarchs, and nine or ten much smaller roosts. They are all under identical ecological conditions in an area of not much more than a hundred square kilometres, yet all Monarchs from the eastern USA and Canada reach these roosts.

During the walk down to the car in the late afternoon, the Monarchs were making their way back up. Stop for a moment in a ray of sunshine, and four or five will settle on your shirt to drink up that little bit of extra heat needed to get them safely back to their roosts.

The night is spent in a lovely little hotel ($12 for the night, and $3 for a three-course meal). Montezuma was not out to get me. The traffic police waved politely. I was ready to face the 48-hour journey back to Botswana, rather improbably touching Montreal, Madrid, London and Lusaka on the way. I need not have worried about the Monarchs. No matter how well you know them intellectually, no matter how many films you have seen, once you stand there, you stand in awe.—T.B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

***Thera juniperata* Thunberg in eastern Ireland.**

On 27.x.1986, one of us (JKE) took an unfamiliar looking geometrid at Newbridge, Co. Kildare (Irish grid ref. N803142). Just over two years later, on the evening of 5.xi.1988, KGMB took a similar specimen at Stepaside, Co. Dublin (IGR O192242). Comparison with the illustrations in Skinner B. (1984. *Colour identification guide to moths of the British Isles.* Viking, Harmondsworth) indicates that both specimens are examples of *Thera juniperata juniperata* Thunberg. In Ireland *T. juniperata* has up to now only been reported from the Burren, Co. Clare and Connemara, Co. Galway (Baynes, E.S.A., 1964. *A revised catalogue of the Irish Macrolepidoptera* (Butterflies and Moths). E.W. Classey Ltd., Hampton,. Middlesex), but the form found in those areas is considered to be a distinct

Irish race, intermediate in size between the nominate form and *T. juniperata scotica* White, and with a paler colour than the former (Skinner, *loc. cit.*). The Newbridge and Stepaside specimens have a greyer ground colour and broader wings than two examples in the possession of KGMB, labelled "[bred] Burren, Co. Clare Eire; 30.ix.1964; E.S.A. Baynes". It is possible that some of the difference in ground colour is due to ageing of the Burren specimens. The Burren specimens, both males, have wingspans of about 23mm and 25mm respectively, while the Newbridge specimen, also a male, has a wingspan of 25mm, and that of the Stepaside specimen, a female, is 23mm.

The recent discovery of a form of *Thera juniperata* in eastern Ireland more closely resembling the nominate form, and which is here tentatively ascribed to it, suggests that the species has been introduced into the area along with the foodplant, either from Britain, or from continental Europe. The Stepaside specimen was caught in a suburban locality in which several small juniper bushes were noticed in the immediate vicnity. The Newbridge specimen was found in a similar locality, in an almost ten-year-old housing estate, in which juniper bushes are likely to have been planted at least six years ago.— K.G.M. BOND, Zoology Department, University College, Cork, Eire. J.K. EARLY, Geology Department, University College, Belfield, Dublin 4, Eire.

Hentomological spelling.

I can readily sympathise with Mr P. Roper (*antea*: 97) in his bewilderment over the various perversions, oddities, and apparent personal quirks in the spelling of names based on those of places. In a priority-based system these doubtless have to be preserved, and it is probably beyond anyone's reason to explain them all.

However, I can, perhaps, suggest a reason for the odd spelling *rhoumensis* for the race of the Small Heath on Rum. I would guess that the original form of the island's name was Innis na Dhruim, "island of the ridge", i.e. a ridge or "backbone" of mountains. (The radical form *druim* is the origin of the element Drum- in Scottish and Irish place-names.) Now this *dhruim* (not to enter too deeply into Gaelic phonology) would sound, roughly, something like "rhoom" or "rhoum" — certainly not like English "rum". Hence *rhoumensis* could be held to be a more phonetic spelling than *rumensis,* while the latter would have been preferable on grounds of simplicity. As to the Romans, I doubt if they knew the island; but if so, I expect they would have called it quite simply Insula Ruma. (The diphthong "ou" became disused early in the history of Latin, old "ou"s becoming "u"s.)

The case of *Daboecia* is quite different: it was evidently a blunder on someone's part, possibly a printer's but more likely, I think, a *lapsus calami* by the author or a copyist. He must have meant to write *Dabeocia,* but the termination *-oecia,* so common in scientific names (Greek *oikos*

"habitation") could by a slip very easily have been written instead of *-eocia*.

I agree with Mr Roper's implication that obvious original errors of this kind ought to be corrigible; there can be nothing sacrosanct about them. I understand that the Rules do permit correction of spellings where a *lapsus* or misprint is evident, but I think more use should be made of this escape-clause. Misprints and misreadings are no doubt at the root of most such cases. Should an author really be at the mercy of his printer in this way for the rest of time?— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Migrant Lepidoptera in Cornwall, September and October 1990.

For many years I have visited Cornwall during the month of October in the hope of finding some of the more interesting migrants which visit our shores. We spent the week from the 28th September to 5th October in a delightful cottage on a wooded hillside overlooking Gillan Creek, Helford River, near Falmouth (Ref. SW 781253). The first evening produced only a few common migrants but things improved on 29th when two *Orthonoma obstipata* Fabr. and a single *Spodoptera exigua* Hb. came to light, the first species I have not seen for many years and the second was completely new to me. However, the undoubted entomological highlight of the year came on the 1st October when two *Utetheisa puchella* Linn. (both males) were recorded together with a female *Heliothis armigera* D. & S. and a single *Palpita unionalis* Hb. Despite running the light for the rest of the week there were no more migrants of note.

During the day I was very pleased to be able to record *Macroglossum stellatarum* Linn. on three occasions in various parts of Cornwall and a large number of *Vanessa atalanta* Linn. including nine on one sunny bank of ivy at Gillan Creek on the 4.10.90 and several *Vanessa cardui* Linn.

A complete list from Gillan Creek is given below:

Palpita unionalis Hb. 29.9.90, 1.10.90; *Rhodometra sacraria* Linn. The Vestal. 29.9.90, two on 30.9.90, and two more on 1.10.90. *Orthonama obstiata* Fabricius, The Gem. Two on 29.9.90. *Utetheisa pulchella* Linn, Crimson Speckled Footman. Two on 1.10.90. *Mythimna vitellina* Hübner, The Delicate. Two on 28.9.90, two on 1.10.90. *Mythimna unipuncta* Haworth, White-speck. Two on 28.9.90, two on 1.10.90, 4.10.90. *Spodoptera exigua* Hübner, Small Mottled Willow. One on 29.9.90. *Heliothis armigera* D. & S., Scarce Bordered Straw. A single female to light on 1.10.90. *Heliothis peltigera* D. & S., Bordered Straw. One on 29.9.90. *Autographa gamma* Linn., Silver Y. 28.9.90, 3.10.90, 4.10.90. *Macroglossum stellatarum* Linn., Hummingbird Hawkmoth, 30.9.90, Trelowarren, near Gweek, Helston SW719239, 1.10.90 Gillan Creek, Falmouth, 3.10.90 St Mawes, Cornwall SW 855332.— COLIN HART, Fourpenny Cottage, Dungate Lane, Bletchworth, Surrey RH3 7BD.

Unseasonal *Colostygia multistrigaria* Haw. (Lep.: Geometridae)

On 30th November 1990, a female *Colostygia multistrigaria,* the Mottled Grey, in good condition, was taken at a Rothamsted light trap at Aberporth, north of Cardigan, West Wales. November had been a relatively mild month with a little frost in the first few days, and again at the end of the month, but with high night temperatures during the middle two weeks. What initiated this early emergence is a mystery because although the minimum temperature on 30th November was 3°C, the three previous nights recorded frosts of $-2°C$, $-3°C$, and $-2°C$. My thanks to Adrian Riley for confirming my identification.— I.J.L. TILLOTSON, Cyngor Gworchod Natur, Plas Gogerddon, Aberystwyth, Dyfed SY23 3EE.

***Oligostigma polydectalis* Walker (Lep.: Pyralidae) in Cambridgeshire**

Oligostigma polydectalis was "originally described from Australia, and is known to range from there through Malaysia" (Goater, B. (1986), *British Pyralid Moths,* Harley Books, Colchester). So far only five specimens of this distinctive tropical china-mark moth appear to have been recorded in the British Isles. Four were found at aquatic nurseries at Enfield between 1978 and 1979 (Agassiz, D.J.L., 1981, *Entomologist's Gaz.,* **32**: 25-26), and one was found at Escot in Devon in 1988 (Heckford, R.J., 1988, *Entomologist's Gaz.* **39**: 275).

On 9th May 1988 I found a single adult male *O. polydectalis* at rest on the underside of the glass cover of a tropical fish tank in a domestic house in St Ives, Cambridgeshire. The tank was well stocked with a variety of tropical fish and aquatic plants. The latter were obtained from a local retailer who are supplied by Ampthill Aquatics at Theydon Bois in Essex. Despite a careful search in the fish tank I found no evidence of larval feeding or the empty pupal case.

I would like to thank Canon D.J.L. Agassiz for confirming that, as far as he is aware, there are no other British records for this species.— J.N. GREATOREX-DAVIES, The Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs PE17 2LS.

An alternative larval foodplant for *Coleophora prunifoliae* Doets

In late February 1991 near Trowbridge in Wiltshire I found myself close to an area of *Prunus spinosa* where I had discovered cases of *C. prunifoliae* a few years previously. Just as a matter of interest I decided to check on the present status of *C. prunifoliae* in the locality and a few minutes search revealed several cases. A day or so later I recollected that the previous May I had noted the evidence of *Coleophora* activity on some bushes of *Prunus cerasifera* in the same locality but an intensive search at the time failed to reveal the culprits. A few days later on 1st March I decided to mount a

search for hibernating larvae of *C. prunifoliae* on these *P. cerasifera* bushes and found a few cases without difficulty. These particular bushes of *P. cerasifera* have the advantage that no *P. spinosa* is growing immediately nearby, therefore eliminating the possiblity of the larvae having originated on *P. spinosa* and moving to the *P. cerasifera* for hibernation. I doubt if the small larvae would be likely to move far from their original feeding area for hibernation anyway, but one likes to be certain. This would therefore seem to indicate that *P. cerasifera* is an alternative foodplant for *C. prunifoliae*.— H. SMITH, 42 Bellefield Crescent, Trowbridge, Wiltshire BA14 8SR.

Holly Blue in N.W. Kent.

A.A. Allen in his account of butterflies in the Woolwich (S.E. London) district in 1990 (*Ent. Rec.* **103**: 77-78) says that there was a poor and sporadic showing of the Holly Blue, *Celastrina argiolus,* despite its having done so well elsewhere in Britain in the last two years. I am pleased to report that it was abundant in Greenwich Park a mile or two west of Woolwich and also in some of the suburban streets in the area.— PATRICK ROPER, South View, Sedlescombe, Battle, East Sussex TN33 0PE.

***Eremobia ochroleuca* D. & S. Dusky Sallow, (Lep.: Noctuidae) in North Wales.**

The distribution map in Volume 10 of *Moths and Butterflies of Great Britain and Ireland* (Heath, J. & Emmet, A.M. (1983) Harley, Colchester) shows mainly eastern and south-eastern records in England with two isolated records in Glamorgan (v.c.41). This moth has been reported from north Wales as follows: Borras near Wrexham v.c.50 (SJ3633) on 15.viii.82 by J.B. Formstone and one from Glanwyddan near Llandudno v.c.49 (SH8079) on 10.vii.86 — my own record. Both were found in daytime flying round *Compositae*. The species is reported to be spreading westward in recent years; the other record I have is from Wilmslow, Cheshire (v.c.58) in 1944.— H.N. MICHAELIS, 5 Glan-y-Mor, Glan Conwy, Colwyn Bay LL28 5TA.

***Photedes pygmina* Haw., *Callistege mi* Cl., *Laspeyria flexula* D. & S. and *Rivula sericealis* Scop. (Lep.: Noctuidae) observed feeding.**

The above species are described by Heath, J. and Emmet, A.M. (*Moths and butterflies of Great Britain and Ireland,* **10**. Harley, Colchester, 1983) as apparently never feeding in the adult stage, but the following records show they may do so occasionally.

Photedes pygmina, Small Wainscot: a female on a sugared fencepost, 6.9.90. Banffshire; two others on 14.9.90. In each case the rather short haustellum was clearly extended and in contact with the sugar.

Callistege mi, Mother Shipton: a photograph taken by my wife fortuitously shows one with its haustellum inserted into a Germander Speedwell (*Veronica chamaedrys)* flower on 9.6.84 near Lewes, Sussex.

Laspeyria flexula, Beautiful Hook-tip: three singles. all females, at rosebay willowherb (*Chamaenerion angustifolium*) flowers in July 1988 near Lewes, sussex.

Rivula sericealis, Straw Dot: fairly common at honeydew on nettles in June 1988 near Lewes, Sussex.— ROY LEVERTON, Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

Correction

The caption to figure 6 in the paper on *Chrysodeixis chalcites* published in *Ent. Rec.* **103** p.15 was incorrect and should be replaced by the revised caption below:

Fig. 6. Sex differences in pupae (schematic). Female on left, male on right. Far right — detail of cremaster. Scale bar = 0.5mm.

BOOK REVIEWS

Noctuidae Europapeae Vol. 1, Noctuidae 1, by **M. Fibiger.** 208pp, 16 colour plates. A4 boards. Entomological Press, 1990 (obtainable from Apollo Books, Kirkeby Sand 19, DK-5771, Denmark) DKr 680.

This is the first in a projected 12 volume series on the European Noctuidae, and covers the genera *Euxoa* to *Standfussiana,* a total of 133 species.

After a description of each genus, the species are dealt with synoptically under the headings of diagnosis, bionomics, distribution and remarks. Each species (although not subspecies) has an associated distribution map and is illustrated, usually by the male and female with the named subspecies and major forms in 16 colour plates taken from photographs by David Wilson. Diagrams of genitalia are provided for a few species. The text is in English and French, presented in two columns. The book is sturdily bound, and attractively printed.

This first volume of an ambitious project includes a number of taxonomic revisions, particularly in the area of subspecies and new combinations, and also describes two species new to science, *Euxoa mobergi* and *Agrotis yelai.* These changes are listed at the beginning of the work. Volume 3 proposes to provide a comprehensive illustration of genitalia, so those given here are for illustrative purposes only. The description of each species is quite brief, but the colour plates are excellent, with full data provided for each specimen illustrated. The text is easy to read, and the distribution maps are very clear, particularly so as they cover all Europe from Iceland to the Urals.

Subscribers to the whole series qualify for a 10% discount, but even without this incentive a work such as this, with both authority and utility, is good value for money and highly recommended for all those with an interest in European Lepidoptera.

The scientific names of the British Lepidoptera — their history and meaning by **A. Maitland Emmet.** 288pp. 8 monochrome plates. 236 x 156mm. Harley Books, 1991. Boards, £49.95, paperback £24.95.

The human desire to live in an ordered and structured environment, and to communicate with fellow creatures is greatly enhanced by the ability to ascribe synoptic names to complex objects. In the English language the words "car" or "table" instantly convey information and meaning, although in all probability the reader would have little information, and probably less interest, in the etymology of these words. Narrow the horizons a little and imagine two entomologists conversing, with one commenting ". . . a good night — the sugar was seething with *pronuba* and *xanthographa* . . .". For us, no further explanation is needed, but think of the confusion experienced by a passing classical scholar overhearing the conversation — yellow-marked bridesmaids in sugar ?? and blue lights in the middle of a wood ?? A clear case for the constabulary!

Names are the tools of communication and understanding, but particularly in the field of scientific nomenclature their structures are unfamiliar, they are mastered with difficulty, and used without any deeper understanding. This actually does not matter one jot. The fact that scientific names conceal a world of fact and fantasy, romance and reality, mischief and misunderstanding does not influence their use, but simply makes them fascinating.

The main sources of information on the meaning of names have been *An accentuated list of the British Lepidoptera,* published in 1858 and the more recent *Key to the names of British butterflies and moths* (1959). The current work goes far beyond the scope of either of these precursors. After a foreword by Professor Southwood and a brief introduction, is an extensive chapter on A History of the Scientific Nomenclature of Lepidoptera, which leads into the main systematic section of the book. This treats the genera and species of all the currently recognised British Lepidoptera, referenced by their *Log book* number. For each is given the author of the name and a description of its meaning or derivation. Where appropriate the correct Greek derivation is given, together with a transliteration in Roman letters — essential for those unable to read Greek characters. Appendices list people commemorated in names, places similarly used, unresolved names, a list of errors in Macleod's *Key,* references and an index. Monochrome plates of notable nomenclators and pages from Linnaeus' *Systema Naturae* add interest.

This is undoubtedly a work of considerable scholarship, providing a mass of carefully researched information in an easily retrievable form. Unlike other works of this nature, the introductory chapter mixes careful explanation with a readable, informative and often amusing style. The modern education system has sought systematically to impoverish the teaching of the cultural heritage of our society, and has produced a generation who have very little background in Latin, Greek or the general

"doings" of the classical world. For us, this work provides a fascinating perspective and history of the Lepidoptera and the people who named our butterflies and moths.

Colonel Emmet uses the sub-heading "a book for the curious" in one of the chapters. This accurately describes the reader who will derive the most pleasure from dipping into this book, but are there many entomologists who could not reasonably be described as curious? Paul Sokoloff

Habitat conservation for insects — a neglected green issue. Edited by **R. Fry** and **D. Lonsdale** with a foreword by **HRH The Prince of Wales.** XIV + 262pp numerous figs and tables. 32 colour plates. Boards and dust-jacket. Amateur Entomologists' Society 1991. Price £12.00 including postage. (Available from AES Pubications, The Hawthorns, Frating Road, Great Bromley, Colchester CO7 7JN).

Over the years, the AES has sought to improve the quality of its publications whilst retaining their essential usefulness to the amateur and keeping prices as low as possible. With this volume, the AES exceeds its objectives in producing an informative and attractive publication whose readership should extend far beyond the entomologist to reach those with more influence in the conservation debate. In this respect, the AES has been most fortunate in securing endorsement by HRH The Prince of Wales, who has written a most supportive foreword.

The book contains contributions from a number of authors whose work is drawn together by the editors who are themselves major contributors. In ten chapters and six appendices the principles and practice of habitat conservation are covered in a balance of description and sound practical advice. The colour plates are a major feature — the selection of insects typical of certain habitats is probably unnecessary, but provides interest for the non-entomological reader. The many habitat photographs provide the visual focal point for the text, well selected but occasionally depressing when they depict destruction and mismanagement.

This much needed book with a readable and informative style should command a wide audience and significantly advance the cause of insect conservation. Elizabeth Abdulla.

Butterflies of Europe Volume 2 **Introduction to Lepidopterology** edited by **Otakar Kudrna**. 560pp. 114 figs, 4 colour plates. AULA-Verlag 1990. Price DM 248 (subscription price DM 216).

This is the third in the projected eight-volume series on European Butterflies. Vol. 1 (1985) *Concise bibliography* (reviewed in *Ent. Rec.* **98**: 127 and Vol. 8 (1986) *Aspects of Conservation of butterflies in Europe* (reviewed *Ent. Rec.* **99**: 187-188) having already been published. Apart from a volume on the ecology of butterflies, all the remaining volumes will deal with systematics.

This volume starts with the premise that Lepidopterology is a science, and describes the means and method by which butterflies can be studied. The subject material ranges wide, and embraces methodologies unfamiliar to most amateur entomologists. After a general introduction there is a chapter on Lepidopterology in Europe which provides a guide to institutions, museums and societies interested in Lepidoptera and a list of personalities past and present. The remaining 12 chapters are, with their authors in parentheses, Morphology: early stages (J.P. Brock), Morphology: adult structures and function (J.A. Scott), Butterfly phylogeny and fossils (J.A. Scott & D.M. Wright), Origins and phylogeny of butterflies (J.P. Brock), Genetics of European butterflies (R. Robinson), Case studies in ecological genetics (P.M. Brakefield), The butterfly chromosomes and their application in systematics (Z. Lorkovic), Enzyme electrophoretic methods in studies of systematics and evolutionary biology of butterflies (H. Geiger), Experimental breeding of butterflies (S.R. Bowden), Parasitiods of European butterflies and their study (M.R. Shaw), Behaviour of butterflies (T.G. Shreeve) and The movement of butterflies (T.G. Shreeve).

This is not a volume for the faint-hearted, although many of the chapters include a comprehensive glossary of the more specialised terms. Most of the contributors attempt to introduce their chosen chapter and lead the non-specialist reader swiftly to the detailed exposition. For those in, or aspiring to work on, the scientific study of butterflies this is an excellent introduction to the wide range of available methodologies. In the modern world no aspect of study can be pursued in isolation — taxonomy is no longer restricted to study of the morphology of dried specimens; biology, biochemistry and breeding must be included. Similarly ecology cannot be studied in isolation from genetics, parasitology and behaviour. Many of the methods of study described apply equally to other insect groups, increasing the usefulness of the work.

To the amateur, much of the volume will be heavy going but nevertheless provides many useful tips and insights into the study methods. Much of the interest in this series will rekindle when the systematic sections are published, but with the current and previously published volumes are likely to provide a very comprehensive overview of European butterflies.

Keys to the insects of the European part of the USSR Vol. IV part 2. Edited by G.S. Medvedev. 1092pp, 675 figs. Boards. E.J. Brill 1990. ISBN 90 04 08926 8. Price not stated.

This massive volume in the *Keys to the fauna of the USSR,* originally published by the Institute of Zoology of the Academy of Sciences of the USSR (No. 130) in 1981, is now available in an English translation. It deals with certain families of the microlepidoptera — taxonomically from the Tineidae to the Gelechiidae but omitting the Coleophoridae which will be dealt with in part 3. In all some 1,283 species are covered.

In essence this work is a systematic sequence of keys to families, genera

and species with comments on foodplants and distribution in the European sector of the USSR, and adjacent countries. The keys are based on either external characters or genitalia and are copiously supported with illustrations of genitalia, wing venation, alar patterns, other structural features and selected drawings of larval feedings. Pest species are specially noted. The work concludes with a bibliography, list of common names of foodplants and species index.

Because of the dearth of information on microlepidoptera generally, this translation is particularly welcome. Many of the species described here occur throughout mainland Europe and into the British Isles, and in all probability a few of them are yet to be found in the UK. Because parts of the British fauna are understandably absent from this volume, the main value lies in the descriptions of species unavailable elsewhere and the clear illustrations of genitalia. Some species are remarkably cosmopolitan: for example of the 12 or so species of the Gelechiid genus *Caryocolum* known to occur in the UK, the genitalia of nine of them are illustrated in the work under review.

A few of the Russian words of the original translate rather unhappily into English, and the reader must take a sympathetic view of nomenclature — endings such as *Prays fraxinellus* rather than *fraxinella;* names we have sunk into synonyms still in evidence including, for example, the proud *Lithocolletis*. Some of the lists, such as foodplants, are rather strange until one realises that they were originally arranged in Russian alphabetical order. All these criticisms are trivial, as microlepidopterists have to be detectives as well if they are to find their way through the British literature, let alone that from overseas. We could wish for a volume such as this covering the British fauna, and the publishers are to be congratulated on making available this translation.

Paul Sokoloff

OBITUARY

RUSSELL FREDERICK BRETHERTON, C.B., M.A., F.R.E.S.

1906 - 1991

It is with great sorrow that we have to announce the death of Russell Bretherton on the 11th January at the age of 84, and only a few days after the death of his wife. He died quite suddenly from heart failure, but had suffered for some time from a respiratory disorder.

Born at Gloucester on 3rd February 1906, the son of a solicitor, Russell was educated at Clifton, and then at Oxford, where he was to become a Fellow of Wadham College. Then followed a distinguished career in the Civil Service, becoming Under-Secretary for the Treasury, and being awarded the Companion of the Most Honorable Order of the Bath.

Russell joined the British Entomological and Natural History Society in

1947, when it was known as the "South London"*. In 1967, he was elected President, from 1969 - 72 he served as Hon. Treasurer and in 1972 was made an Honorary Member. Of the Royal Entomological Society of London he had been a Fellow since 1944.

Russell was the author of well over two hundred publications on Lepidoptera, many dealing with migration, a subject in which he was especially interested. A full bibliography is appended. His fine collection he bequeathed to Reading Museum, together with his books and diaries.

Our deepest sympathy is extended to all his Family.

J.M. Chalmers-Hunt.

*Two photographs taken at Horsell, Surrey, showing R.F.B. in the field (Cf. *Proc. S. Lond. ent. nat. Hist. Soc.* **1954-55**: plt. VII; *Proc. S. Lond. ent. nat. Hist. Soc.* **1955**: plt. V.).

R.F. Bretherton *circa* 1965 (photograph prepared by E.S. Bradford).

BIBLIOGRAPHY — R.F. BRETHERTON

(A) *The Entomologist*

1936 Migrant *Plusia gamma* at nearly 10,000 ft. Caught in a storm? **69**: 241.
1939 Butterflies in the Alps, 1937 and 1938. **72**: 4-8.
1941 Moths at heads of *Phragmites*. **74**: 96.
1941 Diurnal flight of *Taeniocampa cruda*. **74**: 157.
1943 Apparent sex disparity in *Thecla betulae*. **76**: 205.
1944. *Isturgia limbaria* in Scotland and *Itame fulvaria (brunneata)* in England. **77**: 12-13.
1944 April butterflies. **77**: 89.
1944 The flight of *Saturnia pavonia*. **77**: 130.
1945 *Pyralis lienigialis* Zell. in North Berkshire. **78**: 16.
1945 Larval habits of *Aegeria culiciformis*. **78**: 95.
1947 Foodplant of *Deilephila elpenor*. **80**: 160.
1949 *Nycterosea obstipata* in Surrey. **82**: 19-20.
1949 Butterflies near Paris. **82**: 191.
1949 Spring butterflies in Bohemia. **82**: 254-255.
1950 *Laphygma exigua* and *Caradrina ambigua* in North-west Surrey. **83**: 23.
1950 *Mellinia ocellaris* in the Thames Valley. **83**: 30.
1950 Some wainscots in North-west Surrey. **83**: 55.
1951 *Eupithecia arceuthata* Freyer in North-west Surrey. **84**: 42.
1951 *Nephopteryx similella* Zincken. **84**: 91.
1952 Early immigrants in North-west Surrey. **85**: 96.
1952 (with R.E. Ellison and W.B.L. Manley) Lepidoptera in the Eastern Pyrenees, 1951 (Porté-Puymorens and Vernet-les-Bains, June 30 - July 19 and the Forêt de Rambouillet, near Paris, July 16 and 20). **85**: 197-204, 222-229.
1953 *Pyrgus alveus* ssp. *alveus* and ssp. *accreta* in the Eastern Pyrenees: a correction. **86**: 156.
1953 (with C.G.M. de Worms) A fortnight's collecting in the Durance Valley (Hautes Alpes), with an epilogue at Grenoble (Isère). **86**: 231-237.
1954 (with W.B.L. Manley) Some notes on lepidoptera in the Hautes Alpes, France (Guillestre and Saint Veran), 18th July - 3rd August 1953. **87**: 69-74.
1954 *Chloroclystis debiliata* Hübner in Surrey. **87**: 102.
1954 A week's butterfly collecting in Cyprus. **87**: 207-211.
1955 *Dioryctria splendidella* H.-S. and *Crambus contaminellus* Hbn. in North-west Surrey. **88**: 19.
1955 *Palpita unionalis* Hübner in Surrey. **88**: 30.
1955 *Palpita (Margarodes) unionalis* Hübner (Lep.: Pyralidae) in the British Isles. **88**: 76-81.
1955 *Itame fulvaria* de Villiers (*brunneata* Thunberg) in North-west Surrey. **88**: 210-211.
1955 *Palpita unionalis* Hübner in North-west Surrey. **88**: 247.
1956 The immigration of *Palpita unionalis* Hübner (Lep.: Pyralidae) in 1955, and additional earlier records. **89**: 181-184.
1961 First records of *Thymelicus lineola* (Och.) and *Chlorissa viridata* (L.) in Surrey: a correction. **94**: 37.
1961 *Orgyia antiqua* L. (Lep.: Liparidae) at light. **94**: 136.
1963 (with C.G.M. de Worms) The Alpes Maritimes, July and August, 1962. **96**: 27-31.
1971 Some further comments on the record of *Cucullia lactucae* Schiff. (Lep.) and other species at Stone, Bucks. **104**: 46-47.

(B) *Entomologist's Record*

1949 Butterflies near Paris, Geneva and Annecy, 1948. **61**: 97-100.
1949 Butterflies in Var and Basses Alpes, France. **61**: 121-124.

1950 Butterflies near Stockholm. **62**: 79-80.
1950 A fortnight's butterfly collecting in France (Fontainbleau and Lac d'Annecy). **62**: 101-106.
1951 The early history of the Swallowtail butterfly (*Papilio machaon* L.) in England. **63**: 206-211.
1952 Block versus boards. **64**: 260-261.
1953 Records of some species of *Hydraecia* and *Procus*. **65**: 130-132.
1953 *Eublemma parva* Hübn. in North-west Surrey. **65**: 216-17.
1953 *Calophasia lunula* Hufn. larvae in Kent. **65**: 323-324.
1953 The moth trap in October, 1952 and 1953. **65**: 339-341.
1956 *Agrotera nemoralis* Scop. in East Kent. **68**: 188.
1956 *Leucania albipuncta* in North-west Surrey. **68**: 247.
1956 *Herse convolvuli* L. and *Leucania vitellina* Hbn. in Kent. **68**: 269.
1956 *Rhodometra sacraria* L. in North-west Surrey. **68**: 269.
1956 *Leioptilus carphodactylus* Hbn. in North-west Surrey. **68**: 272.
1957 *Macroglossum stellatarum* L. and *Rhodometra sacraria* L. in Kent. **69**: 245.
1957 *Leucania albipuncta* Haw. in the Scilly Islands. **69**: 251.
1958 *Acherontia atropos* L. and *Heliothis peltigera* Schiff. in North-west Surrey. **70**: 195.
1959 *Ptycholomoides aeriferana* H.-S. in North-west Surrey. **71**: 56.
1959 *Rhodometra sacraria* L. in North-west Surrey. **71**: 56.
1959 Spring butterflies round Lake Garda (North Italy) **71**: 150-151.
1960 *Sterrha seriata* Schrank (*virgularia* Hbn.) in March. **72**: 95-96.
1960 *Crocidosema plebeiana* Zeller at Portland. **72**: 96.
1960 *Malacosoma castrensis* L. and *Spaelotis ravida* Schiff. near Southwold. **72**: 197.
1960 *Eupithecia irriguata* Hbn. in Surrey. **72**: 197.
1961 (with C.G.M. Worms) Pontresina, 1960. **73**: 44-48.
1961 *Opisthograptis luteolata* L. at the light trap. **73**: 80.
1961 *Strymonidia pruni* L. in Oxfordshire. **73**: 126-127.
1961 *Celerio gallii* Rott. and *Nyctrerosea obstipata* F. in North-west Surrey.**73**: 218.
1962 *Diasemia ramburialis* Dup. and *D. litterata* Scopoli in Britain. **74**: 1-9.
1962 Migratory lepidoptera in North-west Surrey. **74**: 25.
1962 (with C. Crauford). A comparison between the macro-lepidoptera recorded in light traps at Ottershaw (North-west Surrey) and Bishop's Stortford (East Hertfordshire), 1954/61. **74**: 134-144.
1962 April butterflies in Provence, 1962. **74**: 144-147.
1962 *Spilosoma lutea* Hufnagel ab. *totinigra* Seitz in Surrey. **74**: 223.
1963 (with C.G.M. de Worms and G. Johnson) Butterflies in Corsica, 1962. **75**: 93-104.
1963 Habits of *Lampropteryx otregiata* Metcalfe. **75**: 206.
1963 Inter-sex and other aberrations of the Silver-studded Blue (*Plebejus argus* L. *(aegon Schiff.)*) in North-west Surrey, 1963. **75**: 277-278.
1964 *Acherontia atropos* L., *Laphygma exigua* Hbn. *Rhodometra sacraria* L. and other migrants in Surrey, 1963. **76**: 29.
1964 Some wayside collecting in Andalusia, April, 1964. **76**: 177-180.
1965 Sampling the butterflies of Sicily. **77**: 168-176.
1965 Burnets and Foresters (Zygaenidae) in Sicily: a correction. **77**: 294.
1966 The new Plusia: *Autographa gracilis* Lempke. **78**: 185.
1966 Butterflies of the French Massif Central, July 1966. **78**: 245-251.
1967 The moth trap in November in North-west Surrey. **79**: 42-44.
1967 A visit to Greece in April 1967. **79**: 191-198.
1968 More about Greek butterflies, June 1968. **80**: 273-281.
1969 Notes on butterflies (Rhodalocera) in Crete in June 1969. **81**: 296-302.

1970 A review of *Cosymbia puppillaria* Hbn . (Blair's Mocha) in Britain. **82**: 95-100.
1970 *Zygaena lonicerae* Scheven in Scotland. **82**: 274.
1971 *Clossiana selene* (Schiff.): a second brood specimen. **83**: 325.
1971 *Lampides boeticus* L. and *Thecla betulae* L. in Surrey. **83**: 326.
1971 Butterflies in the Island of Rhodes, May 1971. **83**: 327-332.
1972 (with J. Coutsis, L.G. Higgins and C.G.M. de Worms) *Agrodiaetus coelestina* Eversmann (A.C.): a Lycaenid new to Greece and Western Europe. **84**: 29-32.
1972. "The Worst June on Record": Light trap results for lepidoptera. **84**: 223-225.
1973 Wingless moths and a frog at the light trap. **85**: 227.
1974 Butterflies in Cyprus, June 1973. **86**: 1-5.
1974 Day-flying lepidoptera attracted to light. **86**: 93-94.
1974 Infertility in female *Hyles gallii* Rott. **86**: 123.
1975 *Diarsia ? florida* (Schmidt) and *Xanthorhoe munitata* (Hbn.) in Swaledale. **87**: 27.
1975 Lepidoptera in the Dordogne, South-west France in May 1974. **87**: 33-37.
1975 *Apocheima pilosaria* Schiff. in early December. **87**: 64.
1975 (with C.G.M. de Worms) A fortnight's collecting in Greece. **87**: 73-85.
1975 The feral foodplant of Least Carpet, *Idaea vulpinaria* H.-S. **87**: 158.
1975 *Calamotropha paludella* Hbn. (Lep.: Pyralidae) in Surrey. **87**: 255.
1975 *Autographa bractea* D. & S. (Lep.: Noctuidae) in Worcestershire. **87**: 255.
1975 *Eupithecia phoeniceata* (Rambur) in Surrey. **87**: 279.
1976 *Nycterosea obstipata* F. in Sussex and Surrey in 1975. **88**: 135.
1976 *Syngrapha interrogationis* (L.) again in Surrey. **88**: 255.
1976 *Nymphalis antiopa* (L.): Camberwell Beauty in Surrey. **88**: 264.
1976 A gynandromorph of *Argynnis paphia* (L.) in Surrey. **88**: 267.
1977 Curtis and Wood on *Eriopygodes imbecilla* Fab. (Lep.: Noctuidae). **89**: 125.
1977 Immigrant species of lepidoptera at the light trap in West Surrey in 1976. **89**: 186-187.
1977 *Eurrhypara perlucidalis* Hbn. (Lep.: Pyralidae) in Lincolnshire. **89**: 338.
1978 *Cyclophora puppilaria* (Hbn.) in West Surrey. **90**: 157.
1978 Behaviour of *Lycia lapponaria* (Boisduval) in sunshine. **90**: 202.
1978 *Pieris brassicae* L. f. *cataleuca* Rober at light. **90**: 337.
1979 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1978. **91**: 81-91.
1980 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1978: a supplementary note. **92**: 62.
1980 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1979. **92**: 89-97.
1980 Early immigrants in Sussex. **92**: 144.
1981 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1979: a supplementary note. **93**: 28-29.
1981 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1980, with an account of the invasion of the Painted Lady *Cynthia cardui* L. **93**: 47-54, 103-111.
1982 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1980: a supplementary note. **94**: 47-52.
1982 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1981, including that of the Monarch butterfly *Danaus plexippus*. **94**: 81-87, 141-146.
1982 Footnote to K. Turner, *Vanessa indica* (Herbst.) in Warwickshire. **94**: 217-218.

1983 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1982. **95**: 89-94, 141-152.
1983 *Calotephria salicata* Hbn.: Striped Twin-spot Carpet again in Surrey. **95**: 211.
1984 (with P.W. Cribb) A colony of *Kirinia climene* Esp. (Lep.: Satyridae) in Greece. **96**: 56-57.
1984 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1983. **96**: 85-91, 147-159, 196-201.
1985 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1981, 1982, 1983: a supplementary note. **97**: 76-84.
1985 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1984. **97**: 140-145, 179-185, 224-228.
1986 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1985. **98**: 159-163, 204-207, 223-230.
1987 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1982, 1983, 1984 and 1985: a supplementary note. **99**: 147-152.
1987 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1986. **99**: 189-194, 245-250.
1988 (with D.W. Baldock) Some butterflies from Turkish Asia Minor. **100**: 133-134.
1988 (with J.M. Chalmers-Hunt) (The immigration of lepidoptera to the British Isles in 1987. **100**: 175-180, 226-232.
1989 (with J.M. Chalmers-Hunt) Lepidoptera immigrants to the British Isles in 1985, 1986 and 1987: a supplementary note. **101**: 131-135.
1989 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1988. **101**: 153-159, 225-230.
1989 *Endotricha consobrinalis* Zell. in Britain: a possible immigrant? **101**: 198.
1989 A correction. **101**: 224.
1990 (with J.M. Chalmers-Hunt) The immigration of lepidoptera to the British Isles in 1989. **102**: 153-159, 215-224.

(C) *Entomologist's Gazette*

1950 The behaviour of moths at light traps: a comment. **1**: 102-104.
1951 Our lost butterflies and moths. **2**: 211-240, folding table.
1952 The European distribution of *Luceria virens*. **3**: 3.
1952 Letter to the Editor. **3**: 211-212.
1953 The occurrence of double broods among moths in North-west Surrey. **4**: 287-295.
1954 *Luceria virens* L. in France. **5**: 8.
1954 Moth traps and their lamps: an attempt at comparative analysis. **5**: 145-154.
1957 The history and status of *Spaelotis ravida* (D. & S.), the Stout Dart in Britain (Lep.: Caradrinidae). **8**: 3-19.
1957 A supplementary note of *Spaelotis ravida* (D. & L.) (the Stout Dart) in Britain (Lep.: Caradrinidae). **8**: 3-19.
1960 Abnormal extra broods of moths in 1959. **11**: 164-166.
1965 *Cadra parasitella* Stdgr. (*Ephestia woodiella* Richards & Thomas) (Lep.: Pyralidae) in North-west Surrey. **16**: 8.
1966 *Uresiphita gilvata* F. (*polygonalis* Hbn.) (Lep.: Pyralidae) in Britain. **17**: 147-148.
1967 Good years and bad years at the light trap, 1952-1963. **18**: 177-189.
1969 What has happened to *Sphinx ligustri* L. (Lep.: Sphingidae)? **20**: 34.
1969 On rearing *Agrotis ipsilon* Hufn. (the Dark Sword-grass) (Lep.: Noctuidaea). **20**: 83-85.
1969 Some corrections to errors in South's *Moths of the British Isles*. **20**: 258.

1970 Notes on breeding *Dasychira pudibunda* (L.) ab. *concolor* Stdgr. **21**: 255-261.
1971 Book review. **22**: 136-137.
1972 *Strymonidia w-album* (Knoch) (Lep.: Lycaenidae) in North-west Surrey. **23**: 120.
1974 Records of *Ostrinia nubilalis* (Hbn.) (Lep.: Pyralidae). **25**: 92.
1974 *Eriopygodes imbecilla* (F.) (Lep.: Noctuidae) in the Alps. **25**: 105.
1975 *Spaelotis ravida* (D. & S.) and *Mesologea literosa* (Haworth) (Lep.: Noctuidae) in Worcestershire. **26**: 2.
1976 More about *Diarisia dahli* (Hbn.) (Lep.: Noctuidae) in Surrey. **27**: 135-136.
1976 (with A.H. Hayes) *Brithys pancratii* (Cyrillo, 1787) a subspecies of *Brithys crini* (Fabricius, 1775) (Lep.: Noctuidae). **27**: 226-228.
1981 *Carterocephalus palaemon* (Pallas) (Lep.: Hesperiidae) at Wood Walton Fen and elsewhere. **32**: 167-168.
1983 Spring in the moth trap, 1981 and 1982: a contrast. **34**: 13-16.
1983 *Hyles hippophaes* (Esper) (Lep.: Sphingidae) and *Lycaides idas calliopis* (Boisduval) (Lep.: Lycaenidae) in the Hautes-Alpes, France. **34**: 96.
1985 A mystery "Blue" from Greece (Lep.: Lycaenidae). **36**: 93-95.
1987 Footnotes to G.H. Mansell, The early stages of *Colias erate* (Esper). **38**: 15,17.

(D) *Proceedings South London Entomological & Natural History Society*

1957 Field meeting: Chobham Common, Surrey, 18th June 1955. **1955**: 75.
1957 Field meeting: Horsell Common, Surrey, 31st July 1955. **1955**: 80-81, plate.
1957 A list of the macrolepidoptera and Pyralidae of North-west Surrey. **1955**: 94-151.
1959 Field meeting: Chobham Common, Surrey, 11th May, 1958. **1958**: 68.
1962 Field meeting: Gomshall, Surrey, 20th August 1961. **1961**: 86-87.;
1965 Additions to the list of macrolepidoptera and Pyralidina of North-west Surrey. **1965**: 18-30.
1967 Field meeting: Hurt Wood, Surrey, 3rd June 1967. **1967**: 90-92.

(E) *Proceedings & Transactions British Entomological & Natural History Society*

1968 The butterflies of Britain in relation to those of the adjacent parts of the continent. **1**:(1): 7-15.
1969 Field meeting: Hackhurst Downs, Surrey, 4th August, 1968. **2**(1): 24-25.
1969 Field meeting: Effingham, Surrey, 19th April 1969. **2**:(2): 69.
1970 Field meeting: Worplesdon, Surrey, 27th September. **3**(2): 56.
1970 Our membership. **3**(2): 61.
1971 Field meeting: White Downs, Surrey, 11th July 1970. **4**:(1): 26.
1972 Field meeting: Effingham, Surrey, 24th April 1971. **4**:(4): 118.
1972 Field meeting: Effingham, Surrey, 22nd April 1972. **5**(2); 83.
1972 Eastern immigrants and resident natives: a survey of some British lepidoptera. **5**(3): 95-119.
1973 Field meeting: Newlands Corner, Surrey, 5th May 1973. **6**(8): 96.
1975 Field meeting: Pewley Down, Guildford, Surrey, 8th June 1974. **7**(4): 108.
1975 Field meeting: Chiddingfold, Surrey, 12th October 1974. **8**(1): 24.
1976 Field meeting: Pewley Down, Guildford, Surrey, 5th June 1976. **9**(3-4): 122-123.
1977 The status of *Autographa gamma gammina* Staudinger **10**(1-2): 27-28.
1978 (with O. Kudrna) Butterflies in Spain: Sierra de Alcaraz, Sierra du Gudar, Sierra de Javalambre. **11**(3-4): 97-100.

1980 Obituary: Baron C.G.M. de Worms. **13**: 37-39, plt. vii.
1980 Insect migration in the northern hemisphere, with particular reference to the British Isles. **13**: 66-67.
1981 (with D.W. Baldock) Butterflies in Corfu (Kerkyra) in late August, 1980. **14**: 101-107.
1981 On rearing the Spanish Fritillary (*Eurodryas desfontaineii* Godart) (Lep.: Nymphalidae). **14**: 109-111.
1981 Book review: L.G. Higgins & N.D. Riley, *Field guide to the butterflies of Britain and Europe. Fourth edition*. **14**: 111.
1982-83 Lepidoptera immigration to the British Isles, 1969-77. **15**: 98-110, **16**: 1-23.
1982 Obituary: J.L. Messenger. **15**: 111.
1982 Field meeting: Pewley Down, Guildford, Surrey, 22nd May 1982. **15**: 115.
1983 Book review: J. Green, *A practical guide to the butterflies of Worcestershire*. **16**: 54.
1983 Field meeting: Horsell Common, Surrey, 29th August 1982. **16**: 61.
1984 Monarchs on the move — *Danaus plexippus* (L.) and *D. chrysippus* (L.). **17**(3-4): 65-66.
1984 Book review: An annotated catalogue of the butterflies (Lep.: Papilionoidea) named by Roger Verity. **17**(3-4): 83.
1984 Book review: J. Duddington & R. Johnson, *The butterflies and larger moths of Lincolnshire and South Humberside*. **17**(3-4): 84-85.
1985 Migrant lepidoptera in April 1985. **18**(3-4): 84-85.
1986 Obituary: L.G. Higgins. **19**(1-4): 84-85.

(F) *British Journal of Entomology and Natural History*

1988 Book review: T.C. Dunn & J.D. Parrack, *The moths and butterflies of Northumberland and Durham, Pt. I (macrolepidoptera)*. **1**(3): 99-100.
1988 Obituary: A. Valletta. **2**(3): 159.
1989 Book review: M. Chinery, *Butterflies and day-flying moths of Britain and Europe*. **3**(3): 101-102.

(G) *Various*

1940 A list of the macrolepidoptera of the Oxford district. *Proc. Ashmol. nat. Hist. Soc.* **1939**: 25-70.
1941 Additions to the list of macrolepidoptera of the Oxford district. *Proc. Ashmol. nat. Hist. Soc.* **1940**: 22-23.
1966 A distribution list of the butterflies of Western and Southern Europe. *Trans. Soc. Br. Ent.* **17**(1): 1-94.
1976 Help wanted. *Bull. amat. Ent. Soc.* **35**(311): 66.
1977 (with O. Kudrna) The discovery of *Brenthis daphne* (D. & S.) in south Spain. *Nota lepid.,* **1**: 17-18.
1979 (with B. Goater and R.I. Lorimer) Noctuidae: Noctuinae and Hadeninae. In: J. Heath and A.M. Emmet (Eds.) *The moths and butterflies of Great Britain and Ireland,* **9**: 120-278.
1983 The incidence of migrant lepidoptera in the British Isles, In: J. Heath and A.M. Emmet (Eds.) *The moths and butterflies of Great Britain and Ireland,* **10**: 9-34.
1983 (with B. Goater and R.I. Lorimer) Noctuidae: Cuculliidae to Hypeninae. In: J. Heath and A.M. Emmet (Eds.) *The moths and butterflies of Great Britain and Ireland,* **10**: 36-413.
1983 Agaristidae. In: J. Heath and A.M. Emmet (Eds.) *The moths and butterflies of Great Britain and Ireland,* **10**: 414.
1989 (with others) Papilionidae, Pieridae, Lycaenidae and Nymphalidae. In: J. Heath and A.M. Emmet (Eds.) *The moths and butterflies of Great Britain and Ireland,* **7**(1): 73-306.

J.M.C.-H.

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

(Founded by J.W. TUTT on 15th April 1890)

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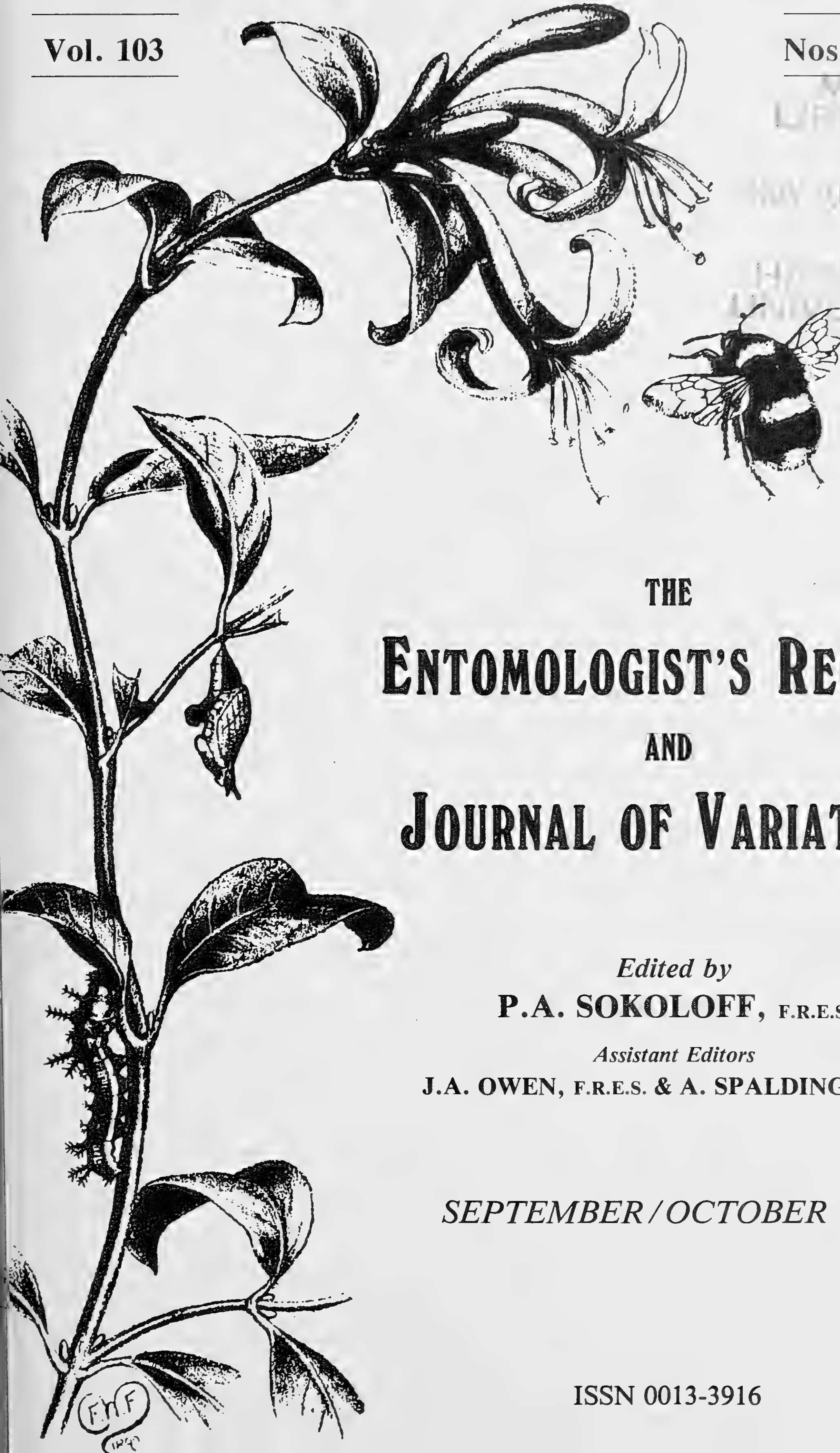

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NOTES ON SOME BORNEO HAWK MOTHS (LEPIDOPTERA: SPHINGIDAE) INCLUDING *EUPANACRA HOLLOWAYI* SP. N . AND *MACROGLOSSUM AMOENUM* ROTHSCHILD & JORDAN, NEW TO BORNEO

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Introduction

SURPRISINGLY little systematic moth collecting has been carried out in Borneo in recent years and the fauna is still imperfectly known. Holloway surveyed the moth fauna of Gunung Kinabalu during a ten month visit in 1965 and was also part of the Mulu expedition to Sarawak in the late 1970s. Harman surveyed the sphingid fauna of Brunei during October 1978 and incorporated a number of other Brunei records in his paper (Harman 1981). Holloway collated known information from the island and listed a total of 94 sphingid species in his series on the Moths of Borneo (Holloway 1978).

This paper is the result of visits to Brunei and Sarawak, from 10th to 26th June 1990 and 20th December 1990 until 29th January 1991. A mercury vapour lamp was run on a total of 28 nights in Brunei and on 16 nights in Sarawak. Aside from some generator problems on the first three nights in June, the lamp was run from before dusk to after dawn on each night. No attempt was made to survey other moth groups or butterflies. Collecting sites were generally of two types. Firstly, in deep primary or secondary jungle where the author was taken by helicopter and secondly in suitable places accessible by road where the sheet could be hung on the side of the hired Toyota Landcruiser. The author drove from Brunei to Kuching on two occasions, in June 1990 and in January 1991. A map, on which all collecting sites are marked, is included.

A total of 71 species were recorded, including several new regional records and two species new to Bornei, one of which is described for the first time in this paper. This brings the known total of Borneo sphingids to 96.

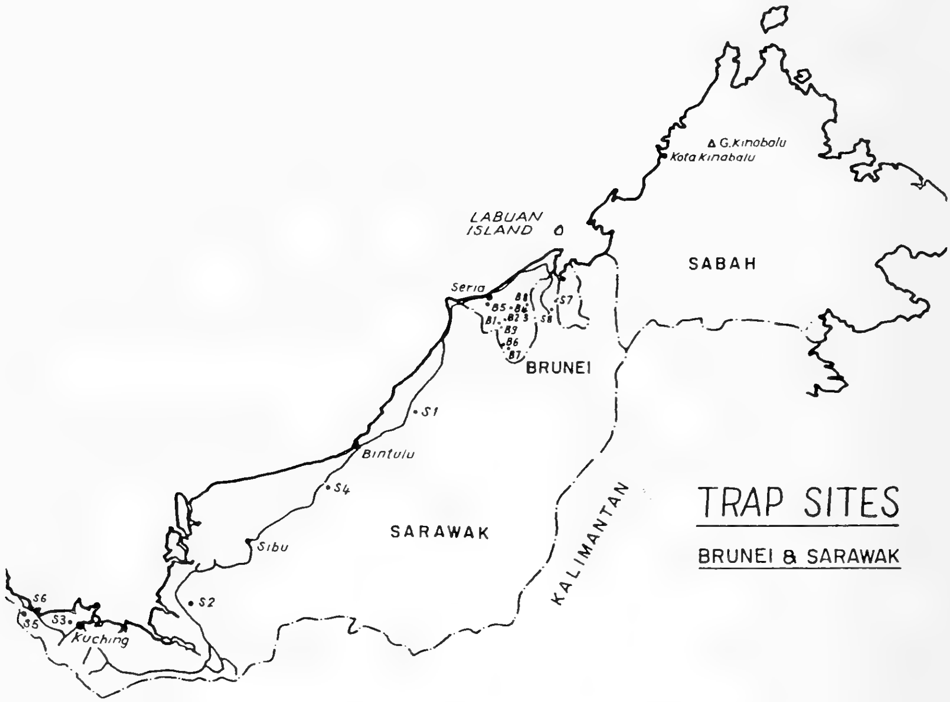
Undoubtedly there are more awaiting discovery.

Trap Sites

BRUNEI

B1. 2 nights (11/12.vi.90). 50m. Labi Road. Ca. 55km from junction with main Kuala Belait — Bandar Seri Begawan road. Cultivated area and swamp to the east and thickly wooded ridge to the west rising to 325m (Bukit Toraja).

B2. 2 nights (13.vi.90, 13.i.91). 110m. Labi Road. Unmarked logging track which begins to north of Labi Road ca. 45m from the junction and rises to an area with patchy (heavily logged) secondary forest.



TRAP SITES

BRUNEI & SARAWAK

B3. 3 nights (14/21.vi.90, 12.i.91). 200m. Labi Road. Higher up the same track as B2. Open area with a view over many miles of forest into Sarawak.

B4. 2 nights (15.vi.90, 29.xii.90). 50m. Labi Road; ca. 35km from the junction on patch of bare ground overlooking secondary growth.

B5. 1 night (31.xii.90). Just above SL. Ulu Belait. Secondary forest.

B6. 3 nights (22/23/24.vi.90). 110m. Sungai Keduan. Dense lowland primary forest on the banks of the Sungai Keduan, accessible only by helicopter. LP 414 (Grid 971637). This locality was notable for the presence of a Civet Cat which had no fear of humans and made off with a box of Oxo cubes and a tube of tomato puree!

B7. 9 nights (25/26.vi.90, 21/22/23/24/25/26/27.xii.90). 125m. Bukit Bahak. Thick primary forest, accessible only by helicopter. LP 338E (Grid 365782).

B8. 4 nights /14/15/24/25.i.91). 320m. Bukit Ladan. A sharp ridge on the Brunei/Sarawak border only recently made accessible by helicopter. Stupendous views to east and west. LP 365 (Grid 333108). The most prolific of all the sites — for butterflies as well as moths; an *Idea* was in the clearing when we flew in, and almost within seconds of the helicopter leaving the clearing was full of nominate *Trogonoptera brookiana* Wallace and *Troides amphrysus flavicollis* Druce feeding at ?*Senecio* species (Compositae).

B9. 2 nights (22/23.i.91). 325m. Bukit Toraja. Overlooking steep ridges covered in primary forest. LP 109 (Grid 900728).

SARAWAK

S1. 1 night (16.vi.90). 20m. Bintulu. About 100km north of Bintulu; 12km along unmarked logging track made 2 - 3 weeks earlier terminating in large muddy clearing in mainly secondary growth.

S2. 1 night (17.vi.90). 200m. Penom. 13m from the junction with the main Sibu-Kuching Road, atop a small hill overlooking an area of mixed secondary forest and cultivation (mainly pepper).

S3. 8 nights (18/19.vi.90, 3/4/5/8/9/10.i.91). 720m. Gunung Serapi, 16km west of Kuching. The summit, slightly higher than the collecting site, houses a radio mast guarded by the Malaysian Army. The whole of the higher part of the mountain is said to be "restricted". The site chosen was a helicopter landing site on a ridge at the beginning of lower montane forest with a superb view over forested ridges to the Sarawak coast and Kalimantan. The site is apparently a National Park, although there was no indication of this on the first visit; on the second a sign had been erected telling visitors of its status.

S4. 1 night (20.vi.90). 410m. Tatau. Close to the summit of a solitary forested hill, 6km along a private unmarked track, 43km south of Bintulu.

S5. 1 night (6.i.91). 240m. Gunung Berumput. 3km before Biawak, unmarked logging track onto lower slopes of Gunung Berumput on the Sarawak/Kalimantan border, below area of undisturbed forest with good views towards Gunung Perigi.

S6. 1 night (7.i.91). 60m. Gunung Perigi. Outside town of Lundu on unmarked logging track, 300m from the main road, on the lower slopes of Gunung Perigi. Mixed pepper and disturbed forest growth.

S7. 2 nights (18/19.i.91). 100m. Limbang. 14km south of Limbang and a further 12km along a wide unmarked logging track. Small cultivated area below site and thickly forested steep ridge across the valley.

S8. 1 night (20.i.91). 320m. Bukit sagan, Limbang. Below radar station on narrow paved road overlooking primary forest.

The species

Agrius convolvuli L. B8 (26), B9 (2), S3 (27), S7 (3) *(58)*. This widespread Old World species was not particularly common during the survey.

Megacorma obliqua Walker. B2 (4), B3 (7), B6 (7), B7 (44), B8 (30), B9 (5), S3 (30), S4 (2), S6 (1), S7 (7) *(137)*. Common in most localities.

Acherontia lachesis F. B1 (1), B2 (3), B3 (7), B8 (86), B9 (4), S3 (73), S4 (1), S5 (2), S6 (2), S7 (32) *(211)*. Common, particularly at isolated hill top sites.

Acherontia styx medusa Butler. B8 (7), S3 (2), S7 (3), *(12)*. This is considerably more scarce than its congenor. It was not taken in Brunei by Harman (1981). Holloway (1987: 122) was aware of only three recent specimens, all taken in Sabah. A total of 121 specimens were taken during this project in Brunei and Sarawak, always in the company of much larger

numbers of *lachesis*. It is interesting that of only four *Acherontia* specimens in the Kuching Museum, one is *lachesis* and the others are *styx*: two are labelled "Kuching. 29.x.1879" and "Kinabalu. 38 - 3100 feet. 20.ix.1913" respectively. The last has no data label. There are also two specimens in the Brunei Museum, caught in the Museum grounds on 5.x.77 and 9.xii.85.

Meganoton nyctiphanes Walker. B2 (1), B3 (2), B6 (1), B7 (5), B8 (7), S3 (4), S7 (2) *(22)*. Widespread but never taken in large numbers.

Meganoton rufescens thielei Huwe. B4 (1), B8 (5), B9 (1) *(7)*. An uncommon lowland species.

Psilogramma menephron Cramer. B2 (2), B3 (1), B7 (3), B8 (36), B9 (7), S3 (36), S5 (2), S6 (1), S7 (10) *(98)*. This is a very variable species. A small proportion of individuals seen had a large area of dark scales around the forewing cell and between the cell and the costa; this is referable to form *casuarinae* Walker.

Psilogramma increta Walker. B2 (12), B3 (17), B4 (7), B6 (1), B7 (11), B8 (23), B9 (22), S3 (20), S6 (1), S7 (12) *(126)*. Common.

Amplypterus panopus Cramer. B2 (3), B3 (5), B4 (2), B6 (1), B7 (4), B8 (34), B9 (5), S3 (8), S7 (1) *(63)*. This large and attractive sphingid was rarely seen in anything other than single figures, although 19 came to light at Bukit Ladan on 14.i.91.

Ambulyx joiceyi Clark. S3 (3) *(3)*. Three specimens came to light on 19.vi.90 and the species was not seen again, despite the light being run on a further seven nights in the same location. A specimen has been deposited at the BM (NH).

Ambulyx obliterata Rothschild. B2 (3), B3 (5), B7 (1), B8 (2), S3 (2) *(13)*. This is a rare species not well represented in the National Collection. Five specimens have been deposited there.

Ambulyx substrigilis brooksi Clark. B4 (2), B7 (2), B8 (3), S3 (9), S7 (3) *(19)*. Not a common species. Considerably smaller than *clavata* or *pryeri*. Three specimens have been deposited at the BM(NH).

Ambulyx tattina Jordan. B8 (4), S3 (2), S7 (1) *(7)*. Holloway (1987: 131) notes three specimens of this species from Borneo. Those taken during this project display considerable variation. One specimen has been deposited at the BM(NH).

Ambulyx pryeri Distant. B1 (11), B2 (9), B3 (6), B4 (3), B6 (4), B7 (42), B8 (75), B9 (18), S1 (4), S3 (34), S6 (5), S7 (9), S8 (7) *(227)*. This common moth was seen in most localities. Six males and four females have been deposited at the BM(NH).

Ambulyx clavata Jordan. B1 (1), B2 (1), B4 (2), B8 (1), S1 (1), S2 (1), S3 (2) *(9)*. Considerably less common than *pryeri, clavata* cannot be separated from that species with any certainty other than by genitalic examination. Three males have been dissected to confirm identification and these, together with a female, have been deposited in the BM(NH).

Ambulyx canascens Walker. B1 (4), B2 (4), B3 (7), B4 (2), B6 (4), B7

(41), B8 (23), B9 (14), S2 (2), S3 (24), S7 (10) *(135)*. Common.

Ambulyx subocellata Walker. B1 (6), B2 (9), B3 (8), B4 (2), B6 (14), B7 (41), B8 (92), B9 (53), S1 (2), S2 (1), S3 (34), S5 (6), S6 (3), S7 (20) *(291)*. Common and extremely variable.

Clanis stenosema Rothschild & Jordan. B7 (3), B8 (2), S7 (2) *(7)*. This is generally a latecomer to the light, specimens were seen flying at 0220 hours; 0300 hours, 0420 hours and 0510 hours. The others were not actually seen flying into the light but were all after midnight.

Harman (1981: 94) records five specimens of *C. bilineata* taken in lowland forest in Brunei; these may have been misidentified. There are three specimens of *stenosema* in the Brunei Museum all incorrectly labelled as *bilineata* (Sg. Burung, Ladan Area, Mohd. Jaya, 9.vi.79; ditto, 11.vi.79; Rampoyoh, 3.viii.89, M.J. Allen). The specimen of *"bilineata"* illustrated by Harman (1981: 98) is also *stenosema*. No specimens of *bilineata* were seen during this project.

Marumba juvencus Rothschild & Jordan. B2 (1), B3 (2), B4 (1), B7 (10), B8 (45), B9 (2), S3 (20), S7 (2) *(83)*. Only four specimens were seen in June 1990; it was common in the same localities in December 1990 and January 1991. Four males and one female have been deposited in the BM(NH).

Marumba tigrina Gehlen. B8 (1) *(1)*. A single example which came to light at Bukit Ladan on 24.i.91 is the first record for Brunei and apparently the third for Borneo.

Daphnusa ocellaris Walker. B1 (2), B2 (6), B3 (7), B6 (2), B7 (26), B8 (31), B9 (4), S2 (1), S3 (11), S6 (4), S7 (5) *(99)*. This species appears to have two distinct colour forms; one is dark grey overall like that illustrated by D'Abrera (1986: 85) and the other a reddish brown like that illustrated by Holloway (1987: plate 14, Fig. 6). Females rarely came to light and only six were seen, four of the "grey" form and two of the "red" form. A pair of each form have been deposited at the BM(NH).

Cypa decolor Walker. B2 (1), B4 (1), B8 (8), B9 (3), S2 (2), S3 (6), S7 (1) *(22)*. A variable species which was usually among the first moths to the light. However, at 0130 hours on 10.i.91 at Gunung Serapi, a male flew into a pot of water some distance from the light; unfortunately for it, the water was just on the boil! Four males and two females have been deposited at the BM(NH).

Smerinthulus terranea Butler. B8 (1) *(1)*. Harman (1981: 94), records an example taken by Allen at Seria on 20.v.78 and Holloway (1987: 140) records another specimen from lower montane forest during the Mulu survey. The only specimen seen during the present survey was at Bukit Ladan on 25.i.91.

Smerinthulus quadripunctatus Huwe. S3 (1) *(1)*. A large, fresh female *quadripunctatus* came to the sheet at 1905 hours on 19.vi.90 at Gugung Serapi.

Degmaptera olivacea Rothschild. B7 (3), B8 (1), S8 (1) *(5)*. Five, mainly fresh, males were taken at Bukit Bahak, Brunei on 22.xii.90, 25.xii.90 (2);

Bukit Sagan, Limbang, Sarawak on 20.i.91 and Bukit Ladan, Brunei on 25.i.91. Two of the specimens have a reddish ground colour like those illustrated by D'Abrera (1986:87), and Holloway (1987: plate 15, Fig. 6); the remainder are a dark green. One of each colour form has been deposited at the BM(NH).

Only four specimens seem to have been known previously — one from Sarawak, two from Sabah and one from Peninsula Malaysia (Holloway 1987: 142).

Callambulyx rubricosa amanda Rothschild & Jordan. B2 (1), B3 (1), B6 (1), B7 (3), B8 (2), B9 (1), S3 (4), S7 (1) *(14)*. Only seen singly, except for 8.i.91 when two came to the sheet at Gunung Serapi. D'Abrera (1986: 188), supports the African *Euchloron megaera* L. as the most beautiful of all the hawk moths. A fresh *rubricosa* must also be a contender for that title! A specimen has been deposited in the BM(NH).

Gnathothlibus erotus erotus Cramer. B8 (4), S3 (9) *(13)*. Holloway (1987: 145) notes only four specimens taken in recent surveys. A specimen has been deposited in the BM(NH).

Daphnis hypothous Cramer. B1 (22), B2 (11), B3 (96), B4 (23), B5 (3), B6 (32), B7 (37), B8 (664), B9 (108), S1 (6), S2 (2), (S3 (310), S4 (18), S6 (3), S7 (8), S8 (25) *(1404)*. The most ubiquitous and numerous of Borneo sphingids usually at the sheet in large numbers even when it was wet, windy and relatively cold (51 were seen at Gunung Serapi on 5.1.91, a cold and miserable night). More than 100 individuals were seen on three different nights and on 25.1.91, at Bukit Ladan, an estimated 330 came to the light. Although an attempt to count individuals was made throughout, weight of numbers occasionally made it almost impossible. The total recorded is estimated and errs on the conservative side.

Daphnis placida Walker. B2 (1), B4 (1), B7 (1), B8 (1), B9 (1), S3 (4) *(9)*. Harman (1981: 94) records eight specimens of *placida* and no *hypothous*; Holloway (1987: 147) notes only two recent *placida* from Borneo, one from Kinabalu in Sabah and the other from Mulu in Sarawak and states that the Harman *placida* are in fact *hypothous*. There is a specimen of *placida* in the Brunei Museum bearing data from the expedition which formed the basis of Harman's paper (Temburong. Mixed Dipterocarp. 300m. ix/x.78) and it is almost certain that both species were recorded at that time. There are a further two specimens caught in the Museum grounds on 3.xii.77 and 28.vii.78. All *placida* in the Museum collection were labelled *hypothous*.

Elibia dolichus Westwood. B1 (1), B2 (3), B3 (1), B6 (1), B7 (4), S1 (1), S3 (2), S6 (1), S7 (3) *(17)*. Widespread but uncommon.

Acosmeryx anceus subdentata Rothschild & Jordan. B1 (2), B2 (28), B3 (14), B4 (8), B5 (2), B6 ((5), B7 (1), B8 (17), B9 (4), S1 (6), S3 (14), S5 (14), S6 ((4), S7 (52) *(171)*. Widespread but not as common as the next species. It was the only sphingid to appear regularly at the hut lights at the Gunung Mulu Base Camp in November 1989 (not part of this survey).

Acosmereyx shervillii Boisduval. B1 (16), B2 (28), B3 (36), B4 (3), B6

(19), B7 (32), B8 78), B9 (5), S1 (48), S3 (34), S5 (3), S6 (1), S7 (83) *(386)*. The relative abundance of forms *pseudonaga* Butler and *shervillii* Boisduval was not formally noted, although the former was certainly much commoner.

Gehlenia falcata Hayes. S3 (13) *(13)*. This species was only seen at Gunung Serapi on 18/19.vi.90. Four specimens have been deposited at the BM(NH).

Eupanacra busiris Walker. B3 (1), B7 (1) *(2)*. Two specimens of this rare species were taken, one at 200m above Labi Road 'and the other at Bukit Bahak on 24.xii.90. Both are considerably larger that those in the author's series from Hong Kong. The apparent scarcity of this, and other similar species may be due to their sporadic appearance at light; they were often netted at dawn in Hong Kong feeding at *Duranta repens* (Verbenaceae), oblivious to the light only a few feet away (Tennent, in press).

Euranacra variolosa Walker. B6 (2), B7 (12), B8 (1) *(15)*. Harman (1981: 95) noted only one specimen of this species during his survey and Holloway (1987: 154) records in as being rare. Seven individuals, including the only female found, came to light on Christmas Eve at Bukit Bahak. It is not always easy to see what make conditions ideal but this was obviously such as occasion since a total of 11 *Eupanacra* of four species, appeared at the sheet before 1900 hours. Two *variolosa* have been deposited at the BM(NH).

Eupanacra dohertyi Rothschild. B1 (5), B2 (4), B3 (1), B4 (3), B7 (2), B8 (14), S1 (3), S3 (4), S6 (2), S7 (5) *(43)*. The most frequently met with member of the genus in Borneo. Although every specimen was closely examined, no *psaltria,* which resembles *dohertyi* quite closely, were found. Three specimens have been deposited at the BM(NH).

Eupanacra automedon Walker. B3 (1) *(1)*.A single specimen of this rare *Eupanacra* was taken above the Labi Road, Brunei, on 12.i.91. Holloway (1987:154), remarks that no specimens have been taken in recent surveys.

Eupanacra malayana Rothschild & Jordan. B2 (1), B7 (1), B8 (1), S7 (1), S8 (1) *(5)*. An uncommon species met with only singly.

Eupanacra hollowayi **sp. n. (Plate 1, Figures 1,2)**. *Panacra psaltria* Jordan; Diehl, 1980 *Heterocera Sumatrana* 1: 41; pl. VII; fig. 5 (Misidentification.

Description. *Male*. Thorax and abdomen with a broad pale green band, darker at the thorax.

Forewing. Prominent white subapical zig-zag mark with asymmetrical angles, as in *E. dohertyi*. Median dark oblique line becoming indistinct just short of the apex. Basal area costad of this line heavily mottled with dark moss-green.

Hindwing. Distinct pale orange submarginal lunules in spaces 2, 3 and 4. Underside with prominent pale green mark from near cell to outer margin.

Genitalia. Not dissected.

Female. Not known.

HOLOTYPE male BRUNEI: Bukit Bahak, LP 338E, 125m, 24.xii.1990 (W.J. Tennent) (British Museum (Natural History)).

Discussion. A single specimen of this attractive insect, quite unlike any other known member of the genus, came to light at 1845 hours on Christmas Eve 1990. It was the first sphingid to arrive on what was obviously a night of ideal conditions since it was followed in the next 15 minutes by a further ten *Eupanacra* of three species; more than were seen on any other night.

At least one further specimen is known, namely that misidentified as "*Panacra psaltria*" by Diehl (1980:41; pl. VII; fig. 5). It is clearly not that species (Holloway 1987: 153).

Diehl states (1980: 41) "Die zierlichste Panacraart, die man etwa als ein Zwischenglied zwischen *busiris* und der *automedon-malayana* Gruppe betrachten kann. Durch einen glücklichen Zufall fand ich die Raupe dieses seltenen Falters an einer Scindapusart (Aroideae) und konnte sie erfolgreich züchten. Die Puppe hat durch grüne Tönungen etwas Ähnlichkeit mit der von *busiris*." (The most attractive *Panacra* species which one can consider to be between *busiris* and the *automedon-malayana* group. Through a happy coincidence I found the larva of this rare moth on *Scindapus* species (Aroideae) and was able to rear it successfully. The pupa has an overall green tone and a similarity to *busiris*).

Distribution: Borneo; Sumatra.

Eupanacra psaltria, which resembles *dohertyi,* is still known only from Borneo. Indeed, following the discovery of *Macroglossum pseudungues* Holloway in peninsular Thailand (Kitching, *unpublished data*), *psaltria* is now the only sphingid endemic to the island.

Eupanacra mydon elagantulus Herrich-Schäffer. B7 (3), B8 (1), S3 (1) *(5).* All those seen came to the sheet very early in the evening, with the exception of one, which flew in at 0558 hours on Christmas Day 1990, just before dawn. A specimen has been deposited at the BM(NH).

Angonyx testacea Walker. S2 (1), S3 (22) *(23).* Most specimens came to light either at dusk or dawn, although it was also seen flying around the light at 0200 hours on 3.i.91 at Gunung Serapi. It was taken commonly at light in Hong Kong and was seen flying there at 2300 hours (Tennent, *in press*).

Enpinanga vigens Butler. B4 (1), B6 ((2), B7 (4), B8 (2), S7 (1) *(10).* Very much more scarce than *borneensis,* seven were taken in June 1990, the other three were taken in Brunei and Sarawak in January 1991. The first to be seen was the only female. Holloway (1987: 157) notes only three specimens from Borneo.

Enpinanga borneensis Butler. B1 (1), B2 (11), B3 (5), B4 (9), B6 (5), B7 (35), B8 (9), B9 (4), S1 (1), S3 (10), S5 (1), S6 (1), S7 (6) *(98).* Widespread and common although females were rarely seen at light. The only females seen were at Bukit Bahak on 22.xi.90 and Gunung Serapi on 10.i.91; another was taken at light by Thom near sea level at Ulu Belait on 15.vi.90.

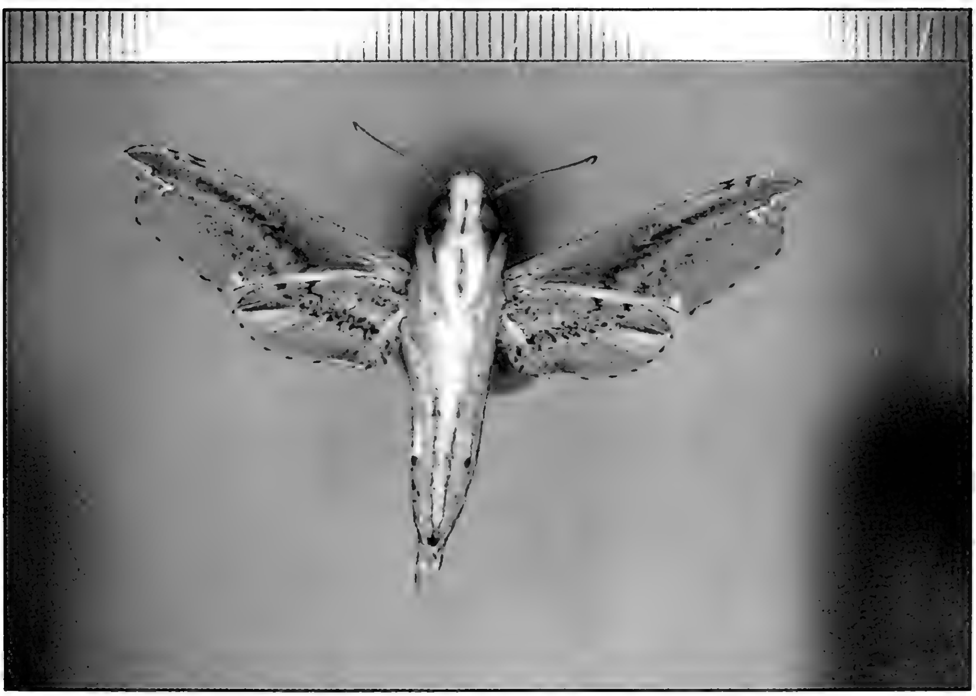


Plate 1. Figure 1. *Eupanacra hollowayi* sp. n. male upperside.
Bukit Bahak (LP 338E) Brunei.
125 metres. 24.xii.1990. (Scale bars = 1mm.)

Figure 2. Underside.

Eurypteryx bhaga Moore. B8 (3), S3 (4) *(7)*. All individuals seen arrived at the light early in the evening, before 2000 hours, apart from one which was found sitting on the sheet at dawn.

Eurypteryx falcata Gehlen. B6 (1), B7 (1), B9 (1) *(3)*. Holloway (1987: 159) notes this species to be extremely rare in lowland areas with only three individuals known from Borneo. It seems to be rare throughout its range. Those taken during this project were by the Sungai Keduan on 22.vi.90; at Bukit Bahak on 21.xii.90 and at Bukit Toraja on 23.i.91. The Bukit Bahak specimen has been deposited at the BM(NH).

Macroglossum amoenum Rothschild & Jordan. S3 (4) *(4)*. Four specimens of this species which came to light within ten minutes of turning the light on at Gunung Serapi on 19.vi.90, constitute a new record for Borneo. It was formerly known only from a few specimens from Singapore and Bangka Island. Identification has been confirmed by genitalic examination and two specimens have been deposited in the BM(NH).

Macroglossum passalus Drury. B8 (1), S3 (3) *(4)*. All four specimens appear to have come to light at dawn since, although they were not seen arriving, all were in very good condition and followed periods of heavy rain when most other moths on the sheet were showing serious signs of wear.

Macroglossum faro Cramer. Seria (1) *(1)*. A fresh specimen found dead on the military aircraft hangar floor at Seria, Brunei, on 9.i.91 seems to be only the second record for Borneo. The only other Bornean specimen was taken at Ulu Belait, not far from Seria, on 23.i.79 (Harman 1981: 95).

Macroglossum mediovitta Rothschild & Jordan. B6 (1) *(1)*. A specimen came to light on the banks of the Sungai Keduan early on 24.vi.90. This is the second individual known from Borneo.

Macroglossum corythus luteata Butler. B8 (1), B9 (1), S3 (5) *(7)*. This and the next species are easily confused and the only certain way of separating worn or greasy specimens is by genitalic examination. However, fresh specimens can be separated by the colour of the underside of the fan and the abdomen, which in *corythus* is chestnut brown and in *sylvia* very dark brown with light grey or white median abdominal patches (Kitching, pers. comm.). Holloway (1987: 164), records only three recent specimens of *corythus,* all taken in upper montane forest above 1500m in Brunei. Specimens taken during this project were at 320 and 325m in Brunei and at 720m in Sarawak. One specimen has been deposited at the BM(NH).

Macroglossum sylvia Boisduval. S3 (7) *(7)*. This is considerably less common than *corythus* throughout its range. Holloway (1987: 165), states that no recent Bornean material can be reliably associated with *sylvai.* The seven specimens taken during this survey were all at 720m, often flying with the previous species. Two individuals have been deposited at the BM(NH).

Macroglossum semifasciata Hampson. S3 (3) *(3)*. Holloway (1987: 165), was only aware of one specimen of this species from Borneo; the holotype from Labuan Island. During the late afternoon of 19.vi.90, at Gunung Serapi, the author was awakened in the back of his Landcruiser from a

deep sleep (brought on by too much wine with lunch at the Kuching Hilton earlier!), by a Malaysian Army Sergeant clutching between thumb and forefinger a live, but remarkably undamaged female *semifasciata,* which he had just caught by hand on the Army camp wall just above the trap site. Two further specimens came to light at the same locality on 9.i.91.

Macroglossum aquila Boisduval. B9 (1) *(1).* One specimen was seen at Bukit Toraja, Brunei, on 23.i.91. The generator was turned off at 0640 hours, about half an hour after dawn; some five minutes later a loud buzzing sound around the sheet proved to be an *aquila* flying very fast and probing small dead (drowned after very heavy rain some hours earlier) moths with its proboscis. Like all *Macroglossum* species it was very difficult to approach; it remained in the vicinity and was eventually netted drinking from a puddle.

Macroglossum variegatum Rothschild & Jordan. S3 *(3).* Three *Macroglossum* were taken at light at Gunung Serapi on 19.vi.90 (2) and 9.i.91; they are considered likely to belong to this variable species which can really only be positively determined by genitalic examination. The genitalia have not been examined.

Hippotion celerio L. S3 (5), S6 (() ,S7 (2) *(8).* This very widespread Old World species was only seen singly.

Hippotion echeclus Boisduval. B8 (4), B9 (1) *(5).* Both Harman (1981: 96) and Holloway (1987: 171), note this species from open lowland habitats. All five specimens seen during this survey were in well forested areas at 320m and 325m.

Hippotion boerhaviae F. B2 (1), B3 (2), S3 (3), S6 (2) *(8).* This and the next species are difficult to identify with certainly other than by examining the genitalia. Although all specimens taken have been allocated to one species or the other they are, in some cases at least, provisional.

Hippotion rosetta Swinhoe. B2 (4), B4 (4), B8 (1), S3 (19) *(28).* Commoner than the last species in Borneo (Holloway 1987: 172). There are several hundred of this species and/or *boerhaviae* in the Brunei Museum, all taken in the Museum grounds.

Theretra nessus Drury. B2 (4), B3 (9), B5 (1), B7 (2), B8 (24), B9 (9), S1 (1), S2 (1), S3 (264), S4 (1), S5 (1), S6 ((2), S7 (12) *(331).* Very common and often abundant.

Theretra boisduvalii Bugnion. B2 (1), B3 (1), B8 (4), S1 (1), S3 (16), S7 (3), S8 (1) *(27).* Listed as *boisduvali* by Harman (1981: 96), D'Abrera (1986: 194) and Holloway (1987: 174). Found less commonly than *clotho,* but nevertheless widespread.

Theretra rhesus Boisduval. B8 (2), S3 (1), S5 (4), S6 (30), S7 (3) *(40).* Holloway (1987: 175) says "*T. rhesus* appears to be rare, the four specimens being taken at altitudes from 250m to 1200m." It was found only sporadically during this survey apart from on 7.i.91 when 30 came to light on the lower slopes of Gunung Perigi, Sarawak. Of these, 27 individuals came prior to 2100 hours, before any *clotho* were seen. *Clotho*

became very common later that night and only three further *rhesus* appeared. The four *rhesus* seen the previous night on the slopes of Gunung Berumput, also came to light early, before any *clotho*.

Theretra clotho Drury. B2 (5), B3 (18), B4 (8), B6 (2), B8 (52), B9 (7), S1 (1), S2 (1), S3 (22), S5 (23), S6 (48), S7 (136), S8 (6) *(329)*. A very common and widespread species.

Theretra latreillii lucasii Walker. B1 (10), B2 (5), B3 (15), B4 (2), B6 (3), B8 (9), S1 (3), S2 (5), S3 (6), S5 (14), S6 (18), S7 (30) *(120)*. Listed as *latreillei lucasi* by some authors. Common and widespread.

Theretra alecto L. B8 (1), S5 (4), S7 (11) *(16)*. Not seen often during the project, probably because it tends to be taken in cultivated areas (Holloway 1987: 177); most of the trapping for this survey was in forest areas at a reasonable altitude. It was not noted by Harman (1981).

Theretra suffusa Walker. B5 (1), S5 (2), S6 (2), S7 (1) *(6)*. Like the last, this is a lowland species found in open cultivated areas.

Theretra silhetensis Boisduval. B1 (5), B2 (7), B3 (6), B8 (7), B9 (2), S6 (2) *(31)*. This species was not uncommon. Although all specimens were examined carefully, no *T. oldenlandiae* were found.

Pergesa acteus Cramer. B3 (1), B7 (1), B8 (4), B9 (2), S1 (3), S3 (1), S6 (12), S7 (17) *(41)*. Not uncommon but sporadic in appearance.

Rhagastis rubetra Rothschild & Jordan. B7 (2), B8 (1), S5 (1), S7 (1) *(5)*. The only specimens apparently noted in Borneo prior to this survey, were four individuals recorded by Harman (1981: 96) and mentioned by Holloway (1987: 182).

Cechenena lineosa Walker. B7 (1), B8 (1), S3 (3), S5 (1), S7 (1) *(8)*. It is interesting that Harman (1981: 96) found this species to be the most abundant sphingid in Brunei. During this survey it was almost the most scarce. Perhaps it is seasonal, although the period covered by this paper includes June, December and January.

Cechenena helops Walker. B1 (1), B2 (11), B3 (12), B7 (20), B8 (26), B9 (11), S1 (2), S3 (31), S5 (3), S6 (6), S7 (20) *(143)*. Widespread and common.

Cechenena aegrota Butler. B1 (1), B2 (2), B3 (1), B4 (1), B6 (1), B7 (26), B8 (2), S1 (3), S3 (9), S4 (1), S5 (1), S6 (3), S7 (1) *(52)*. Harman (1981:96), found this species universally in Brunei and Holloway (1987: 183), noted two specimens during the Mulu survey (Sarawak). During this project it was found to be widespread but uncommon.

Acknowledgements

A number of people rendered support during this survey. They are acknowledged here. Thanks to George Thom for his hospitality in Brunei in June 1990 and for occasionally running the trap in my absence; Huw and Julie Matthews for their friendship and hospitality in December 1990 and January 1991; Alan Hudson and Mick Clayton for their invaluable support in dropping me off by helicopter in various localities in the Brunei jungle

which would otherwise have been inaccessible; John Phillipps for finding and donating the second known Borneo specimen of *Macroglossum faro*: Dr Charles Leh, Curator of Zoology at the Sarawak Museum, Kuching for access to the Sarawak Museum collection and Haji Mohd. Jaya bin Hj. Sayat, Curator of Natural History at the Brunei Museum, Kota Batu, Bandar Seri Begawan for access to the Brunei Museum collection. Particular thanks to Dr Ian Kitching of the BM (NH), London for giving so much of his time in carrying out the genitalia examinations and giving taxonomic advice.

References

Cadiou, J.-M., & Holloway, J.D., 1989. Endemic Sphingidae from Sulawesi (Lepidoptera). *Lambillionea* **89**: 130-158.

D'Abrera, B.L., 1986. *Sphingidae Mundi,* Hawkmoths of the World. Faringdon: E.W.CLassey.

Diehl, E.W., 1980. Sphingidae. *Heterocera Sumatrana* 1.

Harman, T.W., 1981. A preliminary survey of the hawkmoths (Sphingidae) of Brunei. *Brunei Mus. J.* **5**(1): 92-96.

Holloway, J.D., 1976. *Moths of Borneo with special reference to Mount Kinabalu.* Kuala Lumpur: Malayan Nature Society.

— , 1987. *The Moths of Borneo.* Part 3. London.

Rothschild, W. & Jordan, K., 1903. A Revision of the Lepidopterous Family Sphingidae. *Novit. Zool.* **9** (suppl.).

Tennent, W.J., The Hawkmoths (Lepidoptera: Sphingidae) of Hong Kong (and South East China). *Entomologists' Rec. J. Var.* (in press).

A remarkable assemblage of beetles under one stone

Stone-turning is usually among the first collecting methods to be practised by the young beetle-hunter, calling as it does for no special knowledge or apparatus. So at least it was in my own case, when I pursued it to good effect in the gardens both of my parents and (for one season) of my prep-school in Blackheath from the late 1920s. Seldom, however, I venture to think, can such a rich haul of beetles have been obtained from under a single stone of modest size, as on the occasion related here: well over fifty specimens comprising at least sixteen species.

The site was a more or less sterile sand and gravel pit at Plumstead in the S.E. London suburbs, where I had previously found nothing of note. On the occasion in question (11.vii.1958), the pit was particularly dry and barren; two or three slightly damp patches remained on its floor but even they were devoid of beetles. As a last resort, and expecting to draw a blank, I rather casually turned over a solitary stone — the only one there. To my utmost astonishment, small beetles were scattering from under it in all directions, making it no easy matter to collect them or what I hoped was the majority of them. (The assemblage, whatever its composition, was obviously of considerable interest in itself.) Some individuals must have made good their escape but I am inclined to think few or no species were

missed. What brought together such a multitude was, clearly, a combination of two factors — residual moisture and shelter.

The following were found to have been taken. CARABIDAE: *Bembidion genei* Küst., 2; *B. femoratum* Stm., several. STAPHYLINIDAE: *Carpelimus bilineatus* Steph., 1; *C. gracilis* Mann., 10; *C. pusillus* (Grav.), 1; *Platystethus nitens* (Sahlb.), 3; *Hypomedon obscurellus* (Er.), 8; *Leptacinus batychrus* (Gyll.). 9; *Neobisnius lathrobioides* (Baudi), 5; *Philonthus quisquiliarius* (Gyll.), 1; *Gabrius nigritulus* (Grav.), 1 male; *Thecturota (=Pragensiella) marchii* (Dod.), 2; *Falagria caesa* Er. (=*sulcata* auct.), many; *Amischa decipiens* (Sharp), 1; *Atheta (Philhygra) luridipennis* (Mann.), 1; *A. (P.) palustris* (Kies.), 1.

The heavy preponderance of Staphylinidae will be noted, as also the absence among these of any species over about 4mm in length other than the *Philonthus*. Of those present, several are uncommon in this district or indeed not otherwise found there, notably (in the latter category) *T. marchii, H. obscurella* and *A. palustris*. *C. gracilis* though general is quite scarce whilst *F. caesa* (present in numbers) has otherwise occurred to me only singly, even though on numerous occasions. *N. lathrobioides,* like all its genus, is far from common.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

A further record of *Pelosia muscerda* Hufn., the Dotted Footman (Lep.: Arctiidae) in Kent.

A single male of *P. muscerda* was caught in the Rothamsted Insect Survey light trap at Hamstreet, Kent (Site No. 472, OS grid ref. TR 004 334) on 27.vii.1990. No known migrant species were caught on this night. J. Clarke (*Ent. Rec.* **102**: 302) records two specimens at Folkestone Warren on 1/2.viii.1990 and reviews the history of this species in Kent.

Although this species was once at Ham Fen, some 75km away from the R.I.S. trap at Hamstreet, it is no longer believed to occur there. It seems likely that the present record, and those of Dr Clarke, represent a migration of *P. muscerda* from a more distant source.

Thanks are extended to Mr M. Tickner for operating the trap at Hamstreet.—ADRIAN M. RILEY, AFRC-Farmland Ecology Group, Dept. Entomology & Nematology, Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

A melanic form of *Carabus arvensis* Herbst. (Col.: Carabidae)

Following the account by Mr A.A. Allen (*Ent. Rec.* **102**: 214) on melanism in *Carabus clatratus* L., I can report a few melanic specimens of *Carabus arvensis* by acid flushes on Cadair Idris, Merionethshire (SH71), 27.v.1990.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcestershire WR10 3EP.

ORTHOPTERA AROUND BIRMINGHAM

JOHN PAUL

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(Concluded from page 174)

List of Selected Sites

A. *Urban Sites*

1. Snowhill Station (SP0687): This locality, for many years the site of a derelict railway station, is remarkable for being at the heart of Birmingham. Until redevelopment of the site started in the mid-1980s, there were extensive areas of gravel, rubble and clinker, with patches of vegetation and a few bushes. *Chorthippus brunneus* was abundant here at least until 1984, when redevelopment of the site prevented access. Snowhill was popular with Birmingham lepidopterists in the early 1980s because of its strong population of the Common Blue Butterfly, *Polyommatus icarus.* At the time of writing (1990), the site is once again occupied by a functional railway station but it is possible that *C. brunneus* still survives there.

2. Canal banks in the Smethwick area: Birmingham has many miles of canals whose overgrown banks, cuttings and towpaths provide ideal habitat for *Chorthippus brunneus,* which often occurs in large numbers. Most of my collecting was done at Winson Green, near Dudley Road Hospital (SP0488), where there are high south-west-facing banks with rough grassland. As a guest on a Fern Society barge trip in 1984, from Gas Street to Sandwell, I was shown patches of vegetation in a canal cutting, about one mile west of Winson Green which are believed to be vestiges of the once extensive Birmingham Heath, which existed before the industrial revolution. There are a few clumps of ling, cowberry and lemon-scented fern. Unfortunately no heathland Orthoptera were found.

3. Turner's Hill (SO9688) and Darby's Hill (SO/96-89-): These dolerite hills are a conspicuous feature of the West Midlands landscape. They are quarried and built upon, but have large open areas with sparse vegetation. *C. brunneus* occurs in large numbers but I have not detected other species.

4. Wren's Nest Hill (SO9391): A much quarried lump of Silurian limestone, world-famous for its fossils. There are areas of limestone grassland, scree and cliffs. *C. brunneus* is the only species I have recorded, but my searches for Orthoptera at this site have not been extensive.

5. The Vale (SP0584), Edgbaston: The location of Birmingham University's Halls of Residence. There is a south-facing grassy slope with *C. brunneus* and scanty *Omocestus viridulus.*

B. *Sites with semi-natural vegetation on the periphery of the West Midlands conurbation*

1. Sutton Park (SP0919): This is without doubt the premier Orthoptera site in the county of West Midlands. There are large areas of deciduous woodland, rough grassland, heath, bog and lakes. The park is surrounded by built-up areas. Butterflies include the Green Hairstreak and Holly Blue, which is often abundant. I have seen Common Butterwort near Bracebridge Pool. Four species of grasshopper are common in open areas: *O. viridulus, C. parallelus, C. brunneus* and *M. maculatus.*

2. Pelsall Common: The 1:25,000 Ordnance Survey map labels two places as Pelsall Common: the smaller, between Pelsall and Heath End (SK022027) is managed as parkland, with mown turf and a lake, but there are areas of mown heather. On my single visit to the site, I found *C. brunneus,* but other species may occur.

North of Pelsall, west of the B4154 road and straddling the Wyrley and Essington Canal is a better Pelsall Common with large expanses of heather and marshland, with *O. viridulus, C. brunneus* and *M. maculatus.*

3. Wyrley Common (SK0206): Derelict spoil heaps, overgrown with birch, grassland and heather. Despite its uninviting appearance, four grasshoppers occur: *O. viridulus, C. parallelus, C. brunneus* and *M. maculatus.*

4. Chasewater (SK04070): West of the reservoir is a superb fragment of moorland with much heather and a site for sundew, *Drosera rotundifolia,* within the West Midlands. *Chorthippus brunneus* and *M. maculatus* are present there, as well as on a heathy canal bank, east of the minor road (SK047069).

5. Rubery Hill: A quarried and visually unattractive hill, but with some patches of heathland and three grasshoppers: *O. viridulus, C. brunneus, M. maculatus.*

6. Lickey Hills (SO9975; SO0076), Coften Hill (SP0074): Ancient quartzite hills, treed with pine and with open areas of bilberry, grassland and ling. Despite numerous visits I have found only *C. brunneus.*

8. Beacon Hill (SO9876): A grassy slope, overlooking Birmingham. *Chorthippus brunneus* and *O. viridulus* present.

9. Solihull, Riverside Drive (SP165789): From a patch of damp ground with *Carex* spp. and clumps of ling, isolated by newly constructed roads and buildings. J.W. Lewis reported *C. albomarginatus* in 1984. I was unable to find this species when I went there the following year (in less than ideal conditions) but did find *O. viridulus* and *C. brunneus.*

10. Coleshill Bog: A remarkable place, with birch woods, heather, sphagnum bog and a lake, surrounded by major roads: M6, M42, A446(T) and their sliproads. There are numerous dragonflies, including: *Lestes*

sponsa, Enallagma cyathiferum, Aeshna cyanea, Libellulla depressa, L. quadrimaculata and *Sympetrum striolatum.* On one occasion I caught a mature male *S. danae.* Orthoptera by the bog itself have disappointed me, *C. brunneus* being the only species I have found west of the A446(T). However, east of the A446(T) the acid ground continues and at a heathy woodland border (SP203863) are *O. viridulus, C. parallelus* and *C. brunneus.*

11. Bickenhill Plantation (SP1884): Jeremy Roads collected a specimen of *Metrioptera brachyptera* from long grass at this site on 4.ix.1986. The specimen is in Warwick Museum. Pamela Copson kindly sent me a colour slide of the insect which leaves no doubt as to its identity.

In May 1990 two nymphs were found: one was reared. This unusual locality for *M. brachyptera,* being devoid of heather, is due for development.

C. *Heaths and Moors*

1. Wixall Moss (SJ43): A magnificent expanse of peat moor, continuous with Fenn's Moss in Wales. It has long been a favourite hunting ground of Birmingham entomologists and is of national importance for its exceptional fauna. The Large Heath butterfly is common most years. The nationally rare dragonfly *Leucorrhinia dubia* is sometimes abundant: on 6.vii.1986 I collected 50 exuviae in less than half an hour.

Orthoptera found are: *O. viridulus, C. parallelus, M. maculatus, T. undulata* and the local *M. brachyptera.* All of them abound at Whixall.

2. Prees Heath (SJ53): Birmingham entomologists visit this locality for the Silver-studded Blue butterfly, which somehow survives on tiny fragments of sandy heathland in the company of *M. maculatus.*

3. Cramer Gutter (SO6479): A small area of bog associated with a stream, surrounded by dry, sandy heathland. A very rich locality. Dragonflies include *Cordulegaster boltonii and Orthetrum coerulescens.* Orthoptera are of high quality with *M. brachyptera, O. viridulus, C. parallelus, M. maculatus* and *T. undulata.* I have never found *C. brunneus* at Cramer Gutter, in contrast to sites in Birmingham where it is usually the only grasshopper to be found.;

4. Highgate Common (SO8389) and Forest Covert (SO839): Deciduous woodland and heathland with pools. *O. viridulus, C. brunneus* and *M. maculatus* are all common. Mr R. Hill has found *M. brachyptera* in one small damp area of the common, the colony having been discovered by Mr A. Moffet (Hill, pers. com., 1990).

5. Kinver Edge (SO8383): Deciduous woodland and dry heath. *C. brunneus, M. maculatus.*

6. Hartlebury Common (SO8270; 8271): Dry sandy heathland. *O. viridulus, C. brunneus, M. maculatus.*

7. Kidderminster Rifle Range (SO8074; 8174; 8175): Dry sandy heathland. *O. viridulus, C. brunneus, M. maculatus.*

8. Alverley Waste Heap (SO7583): Derelict coal mining land by the River

Severn but visually and entomologically attractive. *T. undulata, C. brunneus, M. maculatus.* Mr R. Kemp has found *M. thalassinum* nearby.

9. Cannock Chase: Extensive area of dry heathland and mixed woodland with valley bogs. Most sites are rich in Orthoptera, but Oldacre Valley (SJ9718) and Penkridge Bank (SK0017) are among the best with: *M. brachyptera, O. viridulus, C. brunneus, M. maculatus.*

D. *Woodland*

1. Wyre Forest (SO77): An outstanding entomological site of national importance. Three grasshoppers are common: *O. viridulus, C. brunneus, T. undulata* is present on the disused railway track and at Sturt Common. Three bush-crickets may be seen: *M. thalassinum, P. griseoaptera* (on the banks of the River Severn near the mouth of Dowles Brook and near Ribbesford Woods) and *L. punctatissima* (Fincher, 1964).

2. Chaddesley Woods complex (SO97): *M. thalassinum* is locally common. Grassland in Randan Wood has *O. viridulus, C. paralellus, C; brunneus.* Fincher (1953) records *T. undulata* from Randan Wood.

3. Monk Wood (SO8060): Of interest to lepidopterists because of its moths and the Wood White butterfly. Three bush-crickets: *M. thalassinum, P. griseoaptera, L. punctatissima* and two groundhoppers: *T. subulata* and *T. undulata.*

4. Trench Wood (SO9258): Another lepidopterist's wood but with: *M. thalassinum, P. griseoaptera, T. undulata, C. parallelus, C. brunneus.*

E. *Grassland*

1. Bredon Hill: On my single visit I found *O. viridulus, C. parallelus* and *C. brunneus,* but it is very likely that more species occur on this outlier of the Cotswolds.

2. Broadway Hill: An enclave of Worcestershire in the generally Orthoptera-rich Cotswolds. I have seen *C. parallelus* and *C. brunneus* and it is probable that several more species occur.

3. Ufton Fields, Warwickshire: Liassic limestone grassland with ponds. A rich limestone grassland with Man and Bee Orchids. *T. subulata, C. albomarginatus, C. brunneus.*

I thank Dr D.R. Ragge for checking the typescript.

References

Clements, D.K. (1987). *Metrioptera brachyptera* (L.) (Orth.: Tettigoniidae) in Staffordshire. *Entomologist's mon. Mag.* **123**: 247.

Copson, P. (1984). (Updated, August, 1984.) Distribution atlas: *Orthopteroids in Warwickshire.* Warwickshire Museum. Warwick.

Daltry, H.W. (1933). Order-Orthoptera. *Trans. N. Staffs. Fld. Cl.* **68**: 136.

Elton, C. (1947). Some Orthoptera from Shropshire and Pembrokeshire. *Entomologist's mon. Mag.* **83**: 42.

Evans, A.E. (1970). *Pholidoptera griseoaptera* (De Geer) (Orth.: Tettigoniidae) new to Leicestershire. *Entomologist's mon. Mag.* **106**: 66.

Fincher, F. (1953). Some notes on the Orthoptera and Dermaptera in the West Midlands. *Entomologist's Rec. J. Var.* **65**: 151-154.

— , (1955). Orthoptera and Dermaptera in Worcestershire. *Entomologist's Rec. J. Var.* **67**: 71.

— , (1964). *Leptophyes punctatissima* (Bosc) (Orth.: Tettigoniidae) in Worcestershire. *Entomoloigst's mon. Mag.* **100**: 98.

Haes, E.C.M. (1983). *Orthoptera Recording Scheme. Newsletter 9.* Biological Records Centre. Huntingdon.

— , (1985). *Orthoptera Recording Scheme. Newsletter 11.* Biological Records Centre. Huntingdon.

Kevan, D.K.McE. (1951). *Platycleis occidentalis occidentalis* Zeuner (Orthoptera: Tettigoniidae) in the Midlands. *J. Soc. Br. Ent.* **4**(2): 42-43.

— , (1952). *Platycleis occidentalis* Zeuner (Orthoptera: Tettigoniidae): a correction. *J. Soc. Br. Ent.* **4**(3): 70.

— , (1954). Further notes on the distribution of British Orthopteroids. *J. Soc. Br. Ent.* **5**: 65-70.

Lucas, W.J. (1920). *A monograph of British Orthoptera.* London.

Marshall, W.J., Haes, E.C.M. (1989). *Grasshoppers and allied insects of Great Britain and Ireland.* Colchester.

Paul, J. (1984). Orthopteroids (Grasshoppers etc). In *Second Warwickshire Wildlife Report 1984.* 11-12.

— , (1986). *Metrioptera brachyptera* (L.) (Orth.: Tettigoniidae) from Staffordshire. *Entomologist's mon. Mag.* **122**: 42.

Ragge, D.R. (1965). *Grasshoppers, crickets and cockroaches of the British Isles.* London.

Smith, K.G.V. (1954). *Meconema thalassinum* (De Geer) (Orth.: Tettigoniidae) in Shropshire. *Entomologist's mon. Mag.* **90**: 21.

The Magpie Moth (*Abraxas grossulariata* L.) in North Cheshire (v.c.58)

I was very intersted in B.K. West's article (*Ent. Rec.* **103**: 89-92). In the 1950s and 1960s any currant or gooseberry bush in the Sale/Altrincham area, to the south of Manchester, could be guaranteed to provide a plentiful supply of larvae of this species. I used to breed large numbers every year, especially from the *Ribes* in my own garden and the allotments across the road.

On 22.x.1967 I came across a vast number of *grossulariata* larvae behind Dunham Park, settling down for hibernation on a small oak tree, on which at that time they appeared to have been feeding. I returned to the site on 17.v.1968 to find the larvae, nearly fully grown, feeding on a hedge of sloe bushes underneath the oak. I brought about five hundred of them home and reared virtually 100% through to moths, among which were a handful of interesting vars, including a few approximating to *hazeleighensis* Rayn. and one *paucisignata* Lempke. Taking this many appeared to have made very little effect on the colony. The remaining caterpillars completely stripped the sloe bushes.

Returning in 1969, I found the colony still present, but in greatly reduced numbers. The following year, there were none. Neither have there ever

been any since, although the habitat is unaltered. At the same time, the species also completely disappeared from all the currant and gooseberry bushes in this area.

In 1990, by very diligent searching on many semi-wild currant bushes in the Birchwood/Risley Moss area of Warrington "new town" (v.c.59), about ten miles from here, I did manage to find five *grossulariata* larvae, and brought the three largest home, from which one moth resulted, the other two being parasitised.

In the years of abundance, I could never persuade *Ribes*-feeding larvae to accept any other pabulum; however the *Prunus*-feeding brood would accept currant. In general, the moths from the local currant bushes were larger than the Dunham examples from sloe.— P.B. HARDY, 10 Dudley Road, Sale, Cheshire.

Farmland Ecology light trap network: interesting Lepidoptera records for September 1990.

Continuing our notes on unusual Lepidoptera records from the network of light traps operating on the Rothamsted Estate, the following are particuarly noteworthy for September 1990:

Considering the relatively large number of unusual immigrant Lepidoptera recorded in the UK this year by various collectors and recorders, it is surprising that only the common species, *Udea ferrugalis* Hb., *Agrotis ipsilon* Hufn, and *Autographa gamma* L. were caught in the traps during September at Rothamsted. However, extra broods of several species of resident Lepidoptera were recorded. *Idaea dimidiata* Hufn. and *Scopula imitaria* Hb. are usually univoltine but a second brood was recorded for both species during mid-September. The occasional second emergence known to occur in *Idaea aversata* L. and *Caradrina morpheus* Hufn. was also recorded. A single individual of *Catoptria falsella* D. & S. and several *Hepialus sylvina* L. were caught on 22nd and 21st-26th respectively. These are late records for these species and it is possible that the former represents a partial second emergence.

The third brood of *Ectropis bistortata* Goeze which was suggested in the notes for August is confirmed by captures of this species to the middle of September. Clear gaps are evident between captures of each brood. *Drepana binaria* Hufn. was also recorded during mid-September after an absence of approximately six weeks. These records also appear to represent a third emergence of this normally bivoltine species.

The occurrence of extra broods during the warm spring and hot summer of 1990 is particularly interesting given the present speculation regarding climatic change.—ADRIAN M. RILEY and MARTIN C. TOWNSEND, AFRC Farmland Ecology Project, Dept. of Entomology and Nematology, Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

THE GENUS *POGONOCHERUS* ZETT. (COL.: LAMIIDAE) IN THE BRITISH ISLES

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13 Old Road, Old Harlow, Essex CM17 0HB.

COUNTIES and vice-counties are represented by Brownean alphabetical symbols (Kaufmann, 1989); those italicised indicate a widespread common species.

Pogonocherus hispidulus Pill. & Mitt.

Generally distributed in England, becoming rarer in the north. There is a shortage of records from elsewhere in the British Isles.

ENGLAND: BD *BK* BX CB *CH CU* DM *DT* DY EC *EK* EN *ES EX EY* GE GW *HF* HT HU *IW* L *LN LR* MX MY ND NH NM NO NS OX SD SE SH SL SN SP *SR* SS ST SY WC WK WL WN WO *WW* WX WY

WALES: DB GM PB RA

SCOTLAND: AM AY ED EL PM

IRELAND: AR NK SK WI

The larva is associated with alder, apple, aspen, beech, birch, cherry, crabapple, elder, elm, fig, hawthorn, hazel, hornbeam, ivy, lime, oak, pear, plane, plum, snowy mespil, spindle tree and *Viburnum*.

Reineck (1919) names Scots pine and spruce among the larval host trees: this is questioned by Duffy (1953); Planet (1924), too, states that the larva is confined to trees of a non-resinous nature.

The larva is parasitised by these Braconids:—
Cenocoelius agricolator L., *C. analis* Nees, *Doryctes undulatus* Ratz. and *Habrobracon palpebrator* Ratz.

The pupa normally overwinters, metamorphosis taking two years to complete, but sometimes, depending upon climatic conditions, eclosion occurs rather earlier such that the adult insect emerges in the autumn. Thus, it may be found as late as October or from March onwards throughout the seasons.

The imagines may be taken from off their host plants and also by beating dead hedges, nettles, old posts and wattle fencing. *P. hispidulus* is illustrated by Donovan (1793).

P. hispidus L.

Like the foregoing species generally distributed but scarcer locally in the north of England. Scottish and Irish records are more plentiful.

ENGLAND: *BK* BX *CB* CH *CU* DM *DT* DY EC *EK* EN *ES EX* EY GE *GW HF HT* HU IW L LN *LR* MM MX MY ND NE NH NM NO NS NW OX *SD* SE *SH* SL *SN* SP *SR* SS ST SW WC *WK* WL *WN* WO WS *WW* WX

WALES: DB GM MG RA
SCOTLAND: AM AS AY DF ED EI EL LA
IRELAND: CV DU KC NK SK WG WI WX

The polyphagous larva is found in an even wider range of brood trees than the preceding species. These include alder, apple, beech, birch, blackthorn, buckthorn, *Cotoneaster,* crabapple, dogwood, elm, fig, hawthorn, hazel, holly, hornbeam, ivy, laurel, lime, mistletoe, oak, pear, plum, raspberry canes, rose, rowan, sallow, spindle tree, *Viburnum,* walnut and willow. In Scandinavia it has attacked Jerusalem artichokes (Bílý & Mehl, 1989)!

Reinbeck also names Scots pine and spruce as the pabula of this species. Duffy's view (*op. cit.*) is that the larva has possibly been confused with that of *P. fasciculatus.* On the other hand, both deciduous and coniferous growths are listed as host trees for *P. hispidulus* and *P. hispidus* by Klausnitzer & Sander (1981).

The larva of the latter is parasitised by these Hymenoptera:— *Cenocoelius agricolator* L., *Doryctes undulatus* Ratz., *Ephialtes manifestator* L., *E. tenebrans* Ratz. and *Eurytoma eccoptogastri* Ratz.

The life cycle varies between one and two years. In normal circumstances the pupa forms during the second year and overwinters; if, however, the autumn months are exceptionally mild, eclosion takes place before the cold weather sets in, the adults emerging in October. Otherwise, *hispidus* occurs from April until September and may be beaten off or swept from the parent trees, faggots, furze, hedges and herbage, oak hurdles and the flowers of guelder rose, holly and ivy.

P. fasciculatus Deg.

This is the third exclusively Scottish Longhorn beetle, confined chiefly to the ancient Highland forests where it is now scarce, and a few Lowland counties where it is equally rare. It has been exported southwards, occurring adventively in some English counties.

SCOTLAND: AS DF EI EL LL PM

Fortuitous introductions:

ENGLAND: DM DY EN (see below) ES EY LN MY ST SY

Stephens (1831) recorded two indigenous specimens "both . . . captured near Norwich." The reference was later queried by Fowler (1890). This is of some significance because in an old pinewood plantation in the neighbourhood of Norwich *fasciculatus* evidently founded quite a flourishing colony — whatever its origins — undisturbed (as was *Leptura rubra* L. in the same area) for a very long time. However, in the present century the insect no longer escaped the attention of entomologists — one collector alone took some two dozen examples during a couple of hours' search there — so it is feared that *fasciculatus* has been eliminated from that part of East Anglia: no new records of its capture from Norfolk have

been published since 1953. Joy (1976) gives Grimsby, Lincs, as another East Anglian locality for the beetle, but the record is based on a single specimen taken in a garden by Dr Wallace (Fowler & Donisthorpe, 1913).

The larva is found in the dead and dying branches of fir, larch, Norway spruce and Scots pine. Klausnitzer (1981) has also recorded it from chestnut trees.

The larva is parasitised by these Hymenoptera:—
Bracon flavulatus Ratz., *Cenocoelius agricolator* L., *C. analis* Nees, *Doryctes igneus* Ratz., *Ephialtes extricator* Nees, *E. manifestator* L., *E. sagax* Htg., *E. terebrans* Ratz., *Habrocytus dahlbomi* Ratz., *H guttatus* Ratz., *H. undulatus* Ratz., *Hemiteles aestivalis,* var. *modestus* Grav., *H. melanarius* Grav., *Iphiaulax flavator* F., *Pteromalis pogonocheri* Ratz. and *Pyracmon xoridiformis* Holmgr.

Pupation takes place in the autumn; the pupa sometimes overwinters, in which case metamorphosis will extend from one to two years.

The imagines eclode in very early spring, the adults emerging in March, when they may be beaten off dead, lopped off branches and dying needles of their coniferous host plants. The beetles occur until as late as October. Those that turn up accidentally are usually found in undecorticated planks and pit props.

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References

Aurivillius, C., 1923. Lamiinae *in* Junk, W. & Schenkling, S., *Coleopterorum Catalogus,* **74**: 326-332. Berlin.
Bílý, S. & Mehl, O., 1989. *Longhorn Beetles (Coleoptera, Cerambycidae) of Fennoscandia and Denmark.* Leiden.
Chinery, M., 1986. *Insects of Britain and Western Europe.* London.
Cooter, J. & Cribb, P.W., 1975. *A Coleopterist's Handbook.* 2nd ed. Feltham.
Curtis, J., 1837. *A guide to the arrangement of British Insects*: 71. 2nd ed. London.
Demelt, C. von, 1966. *Die Tierwelt Deutschlands,* **52**: 2. Bockkäfer oder Cerambycidae, 1. Jena.
Dibb, J.R., 1948. *Field book of Beetles.* Hull.
Donisthorpe, H.StJ.K., 1939. *A preliminary list of the Coleoptera of Windsor Forest.* London.
Donovan, E., 1793. *The natural history of British Insects,* **2**, pl. 64, figs. 2-3. London.
Duffy, E.A.J., 1953. *A monograph of the immature stages of British and imported Timber Beetles (Cerambycidae).* London.
Fowler, W.W., 1890. *The Coleoptera of the British Islands.* **4**. London.
— , & Donisthorpe, H.StJ.K., 1913. *Ibid.,* **6** (Supplement). London.

Freude, H., Harde, K.W. & Lohse, G.A., 1966. *Die Käfer Mitteleuropas,* **9**. Krefeld.
Hansen, V., 1966. Biller, 22. *Traebukke Danmarks fauna.* Copenhagen. (Text in Danish.)
Harde, K.W., 1984. *A field guide in colour to Beetles.* English ed. Hammond, P.M. London.
Hickin, N., 1987. *Longhorn Beetles of the British Isles.* Princes Risborough.
Honnorat, E., 1878. Sur un Cérambycide polyphage *Pogonochaerus dentatus* Fourcroy, *Bull. Soc. zool. Fr.,* **3**: 312-314.
Joy, N.H., 1932. *A practical handbook of British Beetles.* 2 vols. London.
Kaufmann, R.R. Uhthoff-, 1948. Notes on the distribution of the British Longicorn Coleoptera. *Entomologist's mon. Mag.,* **84**: 66-85.
— , 1948. An annotated list of the Scottish Longicorn Coleoptera, *Proc. R. Phys. Soc. Edin.,* **23**(2): 83-94.
— , 1989. Browne *versus* Watson: Round two, *Entomologist's Rec. J. Var.,* **101**: 61-63.
Klausnitzer, B. & Sander, F., 1981. *Die Bockkäfer Mitteleuropas.* Wittenberg Lutherstadt.
Kloet, G.S. & Hincks, W.D., 1977. *A check list of British Insects,* **11**(3), Strepsiptera and Coleoptera: 71, 2nd ed. London.
Linssen, E.F., 1959. *Beetles of the British Isles,* **2**. London.
Marsham, T., 1802. *Entomologia Britannica,* **1**, Coleoptera. London.
Martyn, T., 1792. *The English Entomologist,* tab. 24, fig. 5 (*non* 10)? London.
Planet, L-M., 1924. *Histoire naturelle des Longicornes de France.* Paris.
Reineck, G., 1919. Die Insekten der Mark Brandenburg, II, Coleoptera, Cerambycidae, *Dtsche. Ent. Ztg.,* 1919 (Supplement), 1-92.
Samouelle, G., 1819. *The Entomologist's useful compendium.* London.
Sharp, D., 1880. *Insecta Scotica*: the Coleoptera of Scotland, Scot. Nat., **5**: 371-378.
Speight, M.C.D., 1988. The Irish Cerambycid fauna (Coleoptera: Cerambycidae), *Bull. Ir. biogeog. Soc.,* 41-76.
Spry, W. & Shuckard, W.E., 1840. *The British Coleoptera delineated.* London.
Stephens, J.F., 1829. *A systematic catalogue of British Insects*: 197. London.
— , 1831. *Illustrations of British Entomology, Mandibulata,* **4**. London.
— , 1839. *A manual of British Coleoptera.* London.
Torka, V., 1907. *Pogonocherus fasciculatus* De Geer, *Z. Forst- u. Jagdw.* **39**: 674-676.
Tozer, D., 1953. *Pogonochaerus fasciculatus* Deg. (Col.: Lamiidae) breeding in England. *Entomologist's mon. Mag.,* **89**: 170.
Villiers, A., 1978. *Faune des Coléoptères de France,* **1**, Cerambycidae. Paris.
Walker, J.J., 1932. The Dale Collection of British Coleoptera, *Entomologist's mon. Mag.,* **66**: 105.
Wilson, J. & Duncan, J., 1834. *Entomologia Edinensis,* Coleoptera: 270. Edinburgh.
Winkler, A., 1929. *Catalogus Coleopterorum regionis palaearcticae,* **10**: 1209-1210. Vienna.

A record of *Utetheisa pulchella* Linn. at m.v. light at Buckland, near Reigate, Surrey.

A specimen of this rare migrant was found in my garden trap on the morning of 6th October 1990. The specimen, a male, was exhibited alive at the annual exhibition of the AES later the same day.— COLIN HART, Fourpenny Cottage, Dungates Lane, Buckland, Betchworth, Surrey RH3 7BD.

THE ADAPTATION TO A HOSTILE ENVIRONMENT BY CHANGING OVIPOSITING CUES BY FEMALES OF THE SILVER-SPOTTED SKIPPER (*HESPERIA COMMA* LINN. 1758)

K. Willmott

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I HAVE been studying the fortunes of several different sites on the North Downs properties of the National Trust, all of which usually contain good populations of *H. Comma*. One of the compartments which comes under close scrutiny is figured in E.B. Ford's *New Naturalist* Series No. 1 — Butterflies (first published 1945), plate XVIII facing page 135. In recent years I have noticed a marked diminution of suitable larval foodplant — the Sheeps-fescue grass (*Festuca ovina*). Although the actual quantity of the foodplant has little changed, its suitability has diminished due to severe grazing pressures by the ever-increasing rabbit population. The abundant *Festuca* appears to be the most favoured pabulum of the rabbit in preference to the *Brachypodium* and *Bromus* which also tend to dominate the chalk escarpments, and it is closely grazed to a bowling green like appearance in many of the more open areas.

The eggs of *H. comma* are very easy to find during the latter part of August, as they are rather large and conspicuous on the hair-like blades of *Festuca*. Those tussocks that are relatively isolated and with a percentage of bare ground in close proximity are the most frequently used ovipositing sites. Trying to locate eggs in late winter (February early March, before they hatch) is a different proposition.They are decidedly more difficult to locate and *H. comma* apparently suffers heavy mortality in the overwintering egg stage. In August 1988 thirty eggs were marked out *in situ* on the North Downs for re-locating the following spring. Twenty-one of these eggs disappeared during the winter months. I have come to the inevitable conclusion that most of these egg losses are incurred by grazing rabbits.

The extent of grazing varies from site to site and in different sections of an individual compartment, with areas of a more open nature perhaps being more susceptible to grazing pressure. My observations lead me to believe that the rabbit feels more secure when grazing in these open sites, having an all round vision of any possible predator attack and thus being able to instigate a quick and effective escape to nearby warrens. In areas where there is variable scrub growth and therefore restricted vision, grazing seems to be less intensive and a percentage of *Festuca* remains suitable for ovipositing *H. comma*. With this background, the future for *H. comma* on the North Downs and elsewhere must seemingly be threatened, despite its obvious survival with the rabbit populations of pre-myxomatosis times — I have certainly observed a marked decline in the number of suitable ovipositing sites for females over the past five years. Regular August

inspections of the *Festuca* have been made and several formerly good sites are now devoid of eggs, with merely the remnants of once succulent *Festuca* tussocks remaining as evidence of years past.

During August 1989 whilst working one of the most affected compartments, I noticed a female *H. comma,* after its typical low, short, buzzing ovipositing flight settle on an isolated tussock of Wood False-brome grass (*Brachypodium sylvaticum*) and deposit a single egg low down in its base. There were very few other possible ovipositing sites in the compartment, butanother egg was located a short distance away on *Festuca,* which had little chance of survival as the tussock was already grazed almost to soil level. 1990 saw a decided drop in adult numbers in this heavily grazed compartment, but on the other sites where the pressure was not so intense, numbers were well up to average. Most adult sightings in this depleted compartment were confined to small areas where there was a supply of nectar plants. These mostly consisted of rather small growths of Marjoram (*Origanum vulgare*) and Vipers Bugloss (*Echium vulgare*). Fortunately *H. comma* does seem to be a mobile species and stands of tall scrub do not seem to act as a barrier. I have observed on several occasions *H. comma* fly up and over tall scrub and they are often encountered some distance from their breeding areas, usually at nectar sources, although a temporary colonisation of a site distant from a major breeding site has been noted. This colony became extinct through a complete *lack* of grazing and was formerly winter grazed by two or three horses before being colonised by *H. comma.*

Several of those nectaring in the *Festuca* depleted compartment were seen to be females and it was not too long before I once again observed another female showing great interest in the small drought affected tussocks of *Brachypodium sylvaticum.* The previous fine summer and mild winter had provided the ideal conditions for further increases in the rabbit population and together with the 1990 summer drought had exacerbated the plight of *Festuca* and this was the response of *H. comma* to such a hostile environment. It became commonplace to see the females ovipositing on *Brachypodium* and eggs could even be located on this grass by searching the distinct isolated small tussocks. On one site in the Buckland Hills, a disused quarry, I also observed a female ovipositing and located eggs on Tor grass (*Brachypodium pinnatum*). In the North Downs compartment figured in Ford's book only at the top of the slope, where there was hawthorn and birch scrub, could eggs be located and the females seen ovipositing on the normal *Festuca* sites. The lawn-like main slope is dotted with now suitable tussocks of *Brachypodium* but there are very few nectar plants available to adults.

This unusual event in the ecology of *H. comma* appears to be another example of a positive response to environmental changes within a specialised habitat. A similar comparable event must have been experienced by the White-letter Hairstreak (*Strymonidia w-album* Knoch, 1782) in the

early 1970s at the onset of the severe outbreak of Dutch Elm disease. However, I believe that rather than actually changing from Elm (*Ulmus* sp.) as its larval foodplant, it successfully took advantage of different growth forms of the elm, using the young suckering growths rather than the mature trees of pre-Dutch Elm days.

It is therefore to be hoped that *H. comma* can overcome this pending crisis in a similar innovative manner, and always prosper on the North Downs, regardless of the fortunes of the rabbit. My studies will continue over the winter 1990-91 to re-locate eggs in the spring in order to get some indication of their overwintering success or otherwise.; It will also be important to confirm that the resulting larvae actually accept the *Brachypodium* as a larval pabulum. Wild larvae are difficult to find on *Festuca* growth but I am hoping that the silken structures they abide in will be more obvious in the *Brachypodium*. Damage to foodplant by larval eating should certainly be more distinct on the wider blades of this grass.

Postscript: Unfortunately the follow-up work on the *Brachypodium sylvaticum* was ruined by the ravages of rabbits who ate the small tussocks to the ground, also breaking off the markers in the process. Some ecologists believe that neither *Brachypodium sylvaticum* nor *B. pinnatum* are used by rabbits. My observations on both these species, at least in their spring flush of fresh growth, tell otherwise. K.J.W.

Amphipoea lucens Freyer, the Large Ear, and _A. fucosa_ Freyer, the Saltern Ear (Lep.: Noctuidae) in Hertfordshire.

From a total of 246 male individuals of the genus *Amphipoea* caught in the network of 26 Rothamsted Insect Survey (R.I.S.) light traps operating in Harpenden in 1990, 245 were found by examination of genitalia to be *A. oculea* L. One individual, caught on 24th August, is *A. lucens*. The trap which caught this specimen is situated in the middle of a field in intensive arable farmland. No *A. oculea* were caught at this site, or at two others nearby in a similar habitat.

A. lucens is usually absent from England south of a line from the Severn estuary to The Wash, although this species is reported in Heath, J. and Emmet, A.M. *Moths and butterflies of Great Britain and Ireland,* **10**, 1983 as occurring in Devon and Somerset. It also occurs in at least two wetland habitats in Cornwall. It may well be present but overlooked in suitable habitats in southern England owing to the difficulty of definite identification without examination of the genitalia. It is possible that routine examination of the genitalia, and less reliance on superficial characters, will reveal regular movements of *Amphipoea* species from their known distributional ranges.

It is relevant to note that a single male *A. fucosa* was caught in a R.I.S. light trap at Rothamsted on 25.viii.1949. Identification was confirmed by examination of the genitalia. So far was we are aware, this record has not previously been published. *A. fucosa* is usually regarded as being a coastal species, though its range in S.E. England does extend some way along the Thames Valley.— ADRIAN M. RILEY and MARTIN C. TOWNSEND, AFRC — Farmland Ecology Group, Dept. Entomology & Nematology, Rothamsted Exp. Stn., Harpenden, Hertfordshire AL5 2JQ.

A plea for legal protection for the Sandhill Rustic (*Luperina nickerlii leechi*) (Lep.: Noctuidae) at its site in Cornwall

Several species of animal and plant are protected by the Wildlife and Countryside Act 1981, and subsequent Schedules. This Act makes it an offence to kill, injure, take, possess or sell protected animals or to damage places used by them. All birds are protected except a few pest species, as well as all bats. In many cases species are protected that are not threatened and abundance in certain areas is no bar to protection, as the adder (abundant in Cornwall) is now a protected species. Habitat protection is often the most important means of conservation, but many rare species are scheduled even though their habitat is protected, such as the Swallowtail. Protection focuses attention onto a species, stimulating conservation efforts and encouraging the creation of suitable management plans designed to protect the designated species (A.J. Whitten, 1991, Recovery and hope for Britain's rare species. *British Wildlife,* **2**: 219-229). Even within a protected nature reserve, legal protection enhances the status of the species, as is the case with the Heath Fritillary on protected sites in Cornwall, Somerset and Kent.

The Sandhill Rustic ssp. *leechi* is under threat because of the following factors:

1. This subspecies occurs at only one site.
2. Access to the site is unrestricted, including by 4-wheel drive vehicles.
3. The site is heavily used by holidaymakers.
4. It is easy to collect, and has been collected in the past.
5. The site has been recently damaged by construction work.
6. The site is vulnerable to winter gales.

Legal protection for the Sandhill Rustic would help limit damage under items 2-5. It would make collection illegal, control damage by construction workers and encourage management of the site to discourage over-use by people and vehicles. The site could be managed to encourage the spread of the larval foodplant, *Elymus farctus.* Careful single-species conservation often increases the conservation value of an area, particularly for other insects, as has happened at the Cornish site for the Heath Fritillary. Nothing can be done to avoid the threat of factor 6.—ADRIAN SPALDING, Lerryn Cottage, Lostwithiel, Cornwall.

REMINISCENCES OF AN AMATEUR LEPIDOPTERIST

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(Continued from page 180)

Fortunes of war (Pt. 1).

Even had the weather been suitable, it was not the time for entomology in Mosul, with the Polish division bivouacked around our Consulate, and our own army running a subterranean military hospital in the old marble quarries. It was a forward base against the expected attack by the axis armies, then probing the Caucasus. However, the battle of Alamein and the defence of Stalingrad saved the Middle East from that pincer-movement.

Professor Bodenheimer, of the Hebrew University, whom I had visited when in Beirut, had newly come to Iraq to organise locust-control which threatened cereal crops. He had written much about many animals but now plunged into entomological field-work. His presence in Baghdad favoured the publication by the Government of Iraq in 1944 of the first, rather scrappy, edition of my *Lepidoptera of Iraq*.

Basra was an unhealthy place, and both my wife and I had troubles there. My wife in fact had a serious hospitalisation in Tehran, where her mother resided, while I took a shorter summer leave there, just long enough to meet and pass a few days with Desmond Vesey-Fitzgerald, who was reconnoitring for Boris Uvarov's "Anti-Locust Units" in Iraq and Iran; we climbed to the top of To-Chal, the 13,000 ft peak dominating Tehran. Later he collected a few specimens, for me to name, when scouting for locusts in N. Oman and Dhofar. These however were not quite the first I received from the Arabian peninsula, for I had some from the botanist Violet Dickson of Kuwait, who was a good general naturalist outside her speciality.

I had first met her during my stay in Basra, whence I visited Kuwait briefly once or twice. The town of Kuwait, twice transformed since, had then a population of about forty thousasnd souls and was circled by crumbling walls of coral and mud; on its sandy beaches Kuwaitis were building two or three Arab dhows at a time, with teak imported from South Asia; this and perhaps smuggling were its main industries. Violet was often far outside the town in the desert, in the tent of her husband, the expert on Arab nomads (see Dickson 1949, 1951 or 1983). She was well able to distinguish one species of moth from another, and the rarer from the commoner, which I cannot say for all the naturalists who have kindly sent me specimens.

After catching some moths in late October about fifty miles south-west of Kuwait, she wrote:

"I think I have caught you a good selection. At one time there were quite thirty on the tent and as many on the ground. This time I feel sure there are some *Chondrostega* among them as in spring there are always a few red caterpillars in this vicinity. They came in very slowly and the first didn't come for an hour. The small browny ones did not fly but came fluttering along the gound. The two large white specimens flew and then sat on the tent as you described with their wings closed like a butterfly." (These two proved to be, respectively, the types of *Chondrostega brunneicornis* Wilts., and *C. fasciana* ssp. *feisali* Wilts., the latter described from Iraq).

Violet Dickson lived on to a ripe old age, mostly in Kuwait, respected and loved by all. I didn't see her again and often wondered what she thought of the prodigious changes resulting from the exploitation of Kuwait's oil fields. She was lucky in not being there in the 1990 catastrophe.

I was invalided home for a convalescence in England in early summer 1944; we travelled by troopship. During my first week I spent the time in London, before starting the healthy visits to kith and kin in the country. The city was being peppered with buzz-bombs, fired from Picardy. I of course revisited the Museum, noticing that there was a gap in the terraces in the south side of Cromwell Road, and several in Queen's Gate, but the Museum itself was comparatively intact. I found Willy Tams and Brigadier Evans in the basement, looking after the main bulk of the collection, their work enlivened by occasional ping-pong. Willy had assisted Dr S. Corbet in producing their enduring contribution to the national war-effort (Corbet and Tams, 1943). Brigadier Evans was about to finalise his first volume on the world's Skippers (Evans 1949), and when I commented on the bomb gaps, he replied with relish that he was fortunate in having heard the bomb coming and having ducked behind his work-bench on which a drawer of butterflies rested. Half-a-minute after the bang, when the glass and dust had settled, he raised his head to see that all that remained of the drawer were bare rows of pins sticking up from the paper-lined base.

At the start of the war the Museum had sent its types to the Zoological Museum, Tring, for safety from expected bombing; my foreign lepidoptera were also transferred to Tring from Norwich. I spent most of my leave in the Norfolk countryside, and then proceeded to the Consulate-General, New York.

Prout died in England during World War Two, and so, on the continent, did LeCerf and Zerny.

My principal European correspondents survived the war, not without upsets and tragedies; some, such as Amsel and Daniel (of Munich) had degrees of difficulties, but eventually pursued their lepidoptera-studies happily into their old age.

Dr H.G. Amsel was a bright, slim young man, in the prime of life, who had made a name for himself after visiting Palestine and Sardinia, and

specialised in the pyralidae and Micros; Hitler's magic wand switched him away from his museum studies into police uniform in Norway, where, for all one can tell from entomological results, he might have been in another planet. However, in 1945 he reappeared safely in Germany, was "de-nazified" and pulled all possible strings to return to his former place at the Bremen Museum, but someone else secured that place. He keenly resumed contacts with me and other pre-war colleagues and I was glad to hear that my boxes of Middle East Lepidoptera were mostly all right, despite damage to Bremen Museum itself. To support himself, his wife and two children, he provided the German market with edible mushrooms and fungi gathered by his own hands, as he circulated on a motor cycle in the Black Forest. We saw them all 1951 while driving across Germany. It was not until 1955 that he secured an appointment at the Karlsruhe Museum, where he worked until his retirement in 1970. The entomological world certainly appreciates the sumptuous volumes of *Microlepidoptera Palaearctica* which, starting in 1965, he edited, but may be unaware that he also published much on economics and criminology, and the works of Ernst Jünger. Finally, as late at 1979, he collected a remarkable lepidopterous material from the Asir mountains of Saudi Arabia.

Charles Boursin was, I think, less fortunate; like Amsel he lost his Museum position at the end of world war two and pursued lepidopterology to the end of his life, thanks to his knowledge and competence in his special field. In my relations with him I have nothing to complain of, but he was unpopular with many colleagues on various counts. Perhaps thinking of himself, he told me that the French nation was "très critique et difficile à gouverner"! He had had a German governess in his youth and wrote with ease in that language. He stayed in Paris during the German occupation of the French capital, and continued to publish in the leading French publications well illustrated works. He married during the war but the union was brief. In a letter, after we resumed our correspondence in 1945, he congratulated me on my marriage adding: "Moi-même je me suis marié en 1941, mais j'ai fait, à cette occasion une "erreur de détermination ! si bien que j'ai dû me separer de ma femme un an après". After this he did not marry again, thinking entomology and marriage were not well-suited. However many years later he was helped by a Mlle Carrié whom he greatly admired, and whose death from cancer in 1961 despite Boursin's constant efforts to get her saved, upset him deeply. He travelled during these post-war years to work on the Noctuidae of various European museums, including our own in London, when I met him again. I remember taking him to see Russell Bretherton at Bramley and on a nocturnal moth-hunt with Charles de Worms near Stonor, in July 1964.

When not away, he was evidently in reduced circumstances, living in a single attic-room in a modest Paris hotel. Dujardin and Lajonquière, among his fellow countrymen, appreciated his qualities, the latter taking him on expeditions to Spain, the former by publishing his later articles on

good paper with copious illustrations in his own periodical *Entomops.* Boursin died of a brain tumour in 1971 and bequeathed his personal library, papers and collection to a German Museum, Karlsruhe.

At least the fortunes of war had not uprooted him from his country, as happened to the Brandt brothers and also to Sheljuzhko, a Ukrainian lepidopterist, whom I met in Munich after the war.

References (Part 7)

Corbet, A.S. & Tams, W.H.T., 1943. Keys for the identifications of the Lepidoptera infesting Stored Food Products. *Proc. Zool. Soc. s. B.* **113**: 85-148, 5 pls., 287 figs.

Dickson, H.R.P., 1949, *The Arab of the desert.* Allen & Unwin.

— , 1983. *Idem.* Third edition, edited and abridged by R. Wilson & Freeth. Allen & Unwin.

Evans, W.H., 1949. *A catalogue of the Hesperiidae from Europe, Asia and Australia in the British Museum (Natural History).* BMNH, London, 502pp., 52 pl.

Wiltshire, E.P., 1941. New lepidoptera from S.W. Iran. *Journ. Bombay nat. Hist. Soc.,* **42**(2): 41.

— , 1953. Narrative of a trek and of natural history observations in Kashmir in May-June 1942. *Idem* **51** (4): 825-838 2 pls.

Fortunes of War (Pt.2)

I hardly knew Leo Sheljuzhko, a refugee from Kiev. When I met him, he was employed in the Zoologische Staatssammlungen at the Munich Schloss Nymphenburg. He appeared a gentle, lonely batchelor, and carried a pet (?) hamster in his jacket. As joint author with Otto Holik (1953-58) he wrote 579 pages of the geography of burnet moths and a number of shorter articles, as sole author (1954-67) on other Palaearctic Lepidoptera, in Austrian and German periodicals. All this in addition to his technical skill lavished on the Museum's collections. We co-operated on some Mongolian desert material taken by the Hungarian Dr Kaszab and published at Dresden in 1967.

The Brandt brothers were a younger generation, of German (Hamburg) extraction but born in St Petersburg before the revolution. They thereafter resided in Finland but carried Estonian passports. I got to know them earlier than Sheljuzhko, owing to our studying the same fauna; at least, I got to know one of them, Wilhelm, quite well on paper. In the thirties Fred did the Iranian field work, papering his specimens; and Wilhelm set them meticulously, studied, and published them. His first, unillustrated article with co-author Bytinski-Salz (this magazine 1937), left him dissatisfied.

My transfer from Iraq to Iran in late 1937 meant that Wilhelm and I would have more to discuss than ever, for Fred had visited Shiraz three years before me. We exchanged photos and reprints, and he tried to convert me to his point of view: "Why do you let others describe your discoveries?" he asked me, on noticing in the literature descriptions by Boursin, Wehrli and Bytinski-salz, with "types leg. EPW".

I replied stressing my isolation in distant towns and comparative lack of experience in taxonomy.

"My brother and I are not greybeards," he retorted in a reply running to six pages, "but after my experience with Pfeiffer, Bytinski and Wehrli, I have decided to describe everything myself. You devalue your success by letting others profit from your work!"

I had never thought of getting profits from moths and butterflies, beyond a few swaps of specimens and reprints, and when I now re-read his beautiful hand-written letter, its bitter tone still puzzles me; but it was a point of view not without some subsequent effect.

Fred returned to Herrala in Finland with his final Persian catches, made near Meshed, in July 1938. In May 1939, Wilhelm told me that Fred had gone to Estonia and "wanted to get married" so I wondered whether I might see them both in Tehran, where I spent the summer of 1939. But in fact I never met Fred. War intervened.

Through other sources I heard that he was in Afghanistan and had had an encounter with gendarmes when a companion and he were trying to smuggle arms across the Afghan-Indian frontier. His companion, the story went, was killed and he was wounded in the leg and remained in hospital in Kabul for some time.

Many years later (in late 1990, in fact) Fred told me that he had been appointed "interpreter" in Afghanistan, and had only had one month to collect moths which he sent back in papers to Wilhelm. Not a word about the shooting escapade!

How and why he became involved in these un-neutral activities I have no idea, but I presume that Hitler's pact with Stalin, handing over the Baltic republics to Soviet Russia, may have forced Fred to move westwards from Narva and that his bride may have had a say in the matter. His experience in Persia may have suggested to the German military authorities that he could be more useful to them in the Middle East than in Germany at that juncture.

When the war ended I was in New York, and I received my first letter from Wilhelm for about four years, saying that he had remained all this time in Herrala with his mother. He had obtained my address from Eugen Wehrli, the Swiss Geometrid specialist. He said he had tried to emigrate to the United States in 1940, and now that hostilities had ended, his London uncle, who was an English banker, hoped to persuade Fred to go west rather than east. Fred insisted on going to find his wife in Thüringen, Central Germany. There he was arrested by the Russians. Wilhelm complained that Fred never would do as he was told! Now why, I asked myself, should a German-speaking Russian be arrested in the Russian zone of Germany? Wilhelm also mentioned that on returning to Europe, Fred had assisted English officers in the Balkans. Wondering what was going on, I surmised that the British repatriated to Europe those Germans trapped in Afghanistan and opting to go home to West Germany.

The London uncle had left a good impression at least on Wilhelm who, as a boy had been invited to stay with his English cousins in their country mansion, Nutsfield Priory, Surrey. At the end of the war Wilhelm, if not pro-British, retained a Scandinavian, neutralist outlook. Fred's experiences had left him with German loyalties and (?) a German wife.

Wilhelm remained in Finland until 1947 when his mother died. By this time Eastern Europe had settled down and in Finalnd you could judge which route to follow if you wanted to get out. Wilhelm went to Sweden, sold the collection to the Stockholm Naturhistoriska Museum and emigrated to Australia. He didn't even know whether his brother was dead or alive.

Writing from New Guinea in July 1950, Wilhelm said that he was collecting butterflies there for "Mr E.J. Halstrom, our refrigerator king. The point is to get a real collection of New Guinea butterflies and I understand that I am working ultimately for Australia . . . . I like Australia very much. Nobody ever asked or told me to come here. I came because I wanted to myself. And I want to stay here. But I feel lonely, sometimes. It is because I lived too long with my dear Mother, she was all I had, Mother and friend. Since I lost her I feel so restless . . . . I have nobody! I do not know if my brother is alive or not, probably dead. They got him and that is all I know. His wife lives somewhere in Western Germany but I am not on speaking terms with her. I don't even know her address."

The two brothers seem to have become estranged through misunderstandings, and on his later return Fred felt robbed of his share of the proceeds of the sale of the collection, with which Wilhelm "had run away to Australia".

On his return years later to Germany, my German colleague told me that Fred's health had been undermined by his captivity and that he received some sort of pension from the West German Government. Dr Amsel told me that he had also employed him to set lepidoptera for the Karlsruhe Landessammlung but that he lived at Paderborn. I was told he would appreciate it if I sent him reprints of my latest articles on Iran and Afghanistan; I was then studying Klapperich's material from Afghanistan and was glad to send them to Fred, with whom I exchanged one more letter that year (1961).

Wilhelm Brandt visited the British Museum in the sixties with many well-set New Guinea moths, of which he hoped to write an account to match his famous works on the Lepidoptera of Iran (1937-39). None of this material however remained in our Museum on his return to Australia, but I hear that it is safe in a Museum at Canberra. The funding for his work on it ran out; and he died a disappointed man in the eighties in Australia, without publishing anything on it.

(to be continued)

BRASSOLINAE (LEP.: SATYRIDAE) IN BRITAIN AND EUROPE

C. Roger Bristow

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IN AN earlier article (Bristow, 1986), I listed five records of the occurrence of the Neotropical brassoline *Opsiphanes tamarindi* in Britain. Feedback from that paper and further literature research extends the number of specimens of *tamarindi* in both Britain and Holland as well as recording the presence of *O. cassiae* in Britain and *Caligo* sp. in Britain and Holland. Surprisingly, none of these occurrences is mentioned in Emmet and Heath (1989), even though it was John Heath who brought the Ramsey Market specimen of *O. tamarindi* to me for identification. The inclusion of these rare adventives would bring the total number of butterflies recorded in Britain to 114.

In Britain, additional records of *tamarindi* are from Bridlington (Winter, 1985 and pers. comm.) in May 1984, and Leicester (Lott, 1986) in February 1984. Winter's specimen, found as an adult in a banana warehouse, is reputed to come from the Windward Isles, but this is not possible as no brassolinid is known from those islands (Riley, 1975). As stated in my earlier paper, *O. tamarindi* is not known from further east than western Venezuela. Lott's specimen, discovered as an adult male in a greengrocer's shop, is from Colombia. It most probably belongs to the nominate race.

A second Dutch specimen of *O. tamarindi,* a female, was found in Amsterdam in October 1963 (B.J. Lempke, pers. comm.). It had been imported with bananas from Ecuador. Photographs kindly supplied by Dr Lempke confirm that it is subspecies *corrosus* Stichel.

In London, two specimens of *Opsiphanes cassiae* were bred from pupae found in banana crates from Brazil in 1937 (Tulloch, 1939). Unfortunately, the whereabouts of these specimens has not been traced and their identity has not been confirmed. They were originally in the Stepney Borough Museum. However, in December 1953, the natural history collections were sold. All the insects reputedly passed to the London Hospital Medical College (H. Watton, pers. comm.), but Mr D. Nunn of that college informs me that only a few insects of medical importance were acquired by them. Assuming that these specimens did originate in Brazil, then it is fairly certain that they are *O. cassiae,* as *tamarindi,* a close relative, does not occur there. Other *Opsiphanes* species from Brazil do not feed on banana.

Another banana-feeding brassoline genus that has been found in Britain is *Caligo*. In fact, this is the earliest brassoline to have been recorded in this country. It was found as an adult, presumably having travelled as a pupa, amongst bananas at Aspley near Huddersfield (Mosley, 1926). The bananas are reported to have come from Jamaica. This again is most unlikely, because apart from one dubious record of *Caligo* on that island, Brown and Heineman (1972) have no record of any brassoline on Jamaica.

Luckily this specimen still survives and through the courtesy of Ms D. Harding of the Tolson Memorial Museum, Huddersfield, I have photographs of it set in "life" position. Unfortunately, specific determination is not easy from the photographs, and consequently its country of origin is difficult to narrow down.

In Holland, a specimen of *C. memnon* was found at Rotterdam on 26th January 1977 (Boot, 1978).

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References

Boot, J.P.C., 1978. *Caligo memnon* (Fldr.) aangetroffen in vrachtschip te Rotterdam (Lepidoptera: Brassolidae). *Entomologische Ber., Amsterdam,* **38**: 150.

Bristow, C.R., 1986. The occurrence of *Opsiphanes tamarindi* Felder & Felder (Lepidoptera: Satyridae) in Britain. *Ent. Rec.,* **98**: 96-97.

Brown, F.M. and Heineman, B., 1972. *Jamaica and its butterflies.* E.W. Classey Ltd. London.

Emmet, A.M. and Heath, J., 1989. *The moths and butterflies of Great Britain and Ireland,* Vol. 7, pt. 1. Harley Books. Colchester.

Lott, D.A., 1986. A further British record of *Opsiphanes tamarindi* Felder & Felder (Lep.: Nymphalidae, Brassolinae). *Ent. Rec.,* **98**: 256.

Mosley, C., 1926. *Caligo* sp. at Huddersfield. *Entom.,* **59**: 171.

Riley, N.D., 1975. *A Field Guide to the Butterflies of the West Indies.* Collins. London.

Tulloch, J.B.G., 1939. Insects and other things which arrive by steamer from overseas. *Entomologist,* **72**: 114-116.

Winter, P., 1985. A tropical butterfly imported to Britain. *Proc. Trans. Br. Ent. Nat. Hist. Soc.,* **18**: 14.

Eupithecia valerianata Hb. and *Eupithecia pygmaeata* Hb. (Lep.: Geometridae) in Scotland

On July 12th 1984 I found larvae of *Eupithecia valerianata* commonly near New Galloway in Kirkcudbrightshire, feeding upon *Valeriana officinalis,* and I bred a short series of imagines which emerged the following year.

On June 10th 1986 near Thornhill, Dumfriesshire, I came across a meadow in which flourished a number of large patches of chickweed (*Cerastium* sp.) over which in bright sunshine *Eupithecia pygmaeata* were flying. For the relevant county I am unable to find previous records for these two species.— B.K. West, 36 Briars Road, Dartford, Kent DA5 2HN.

MOTHS IN BRITTANY AND CORNWALL

ADRIAN SPALDING

Lerryn Cottage, Lerryn, Lostwithiel, Cornwall.

IN 1988 I visited the nature reserve Michel-Herve Julien at Cap Sizun near Douarnenez on the coast of Brittany in order to study the moths. The reserve is a haven for seabirds, but is also interesting for its plants and animals. The granite cliffs covered with western gorse and heather provide a habitat very similar to the maritime heathland of Cornwall. I found that the 68 moth species caught here between 2nd and 5th June 1989 were very similar to those caught in Cornwall, although some species such as *Rivula sericealis* (Straw Dot) seemed to be flying some three weeks earlier than in Cornwall. All the moths that I found in Brittany at this time occur in Cornwall, although *Euproctis chrysorrhoea* (Brown-tail), *Nudaria mundana* (Muslin Footman) and *Eilema complana* (Scarce Footman) are rare. I compared the moths of the reserve with the moths of a similar habitat in Cornwall and concluded that the lepidoptera of each place was similar (Spalding, 1989).

I returned to the reserve between 17th and 19th July 1990 to record moths, searching by day and using two traps and a mercury vapour lamp at night. The actinic traps were weighted down with stones against the wind. I recorded a total of 121 species, most of which I have found to be equally common on the coast of Cornwall such as *Hada nana* (The Shears) and *Hadena perplexa* (Tawny Shears). There were numerous *Cilix glaucata* (Chinese Character), hard to find on the granite rocks. The presence of trees such as sallow at the top of the cliff explained the presence of *Epione repandaria* (Bordered Beauty) and *Ipimorpha subtusa* (The Olive), which I had not expected to see so close to the coast.

Some of the species have been found in Cornwall, but are very rare there. The lovely moth *Lozotaeniodes formosanus* is spreading westwards through England and was first recorded in Cornwall by S.C. Madge in 1990. Its distribution in Brittany is not well known but it occurs in Europe as far as Russia (Bradley, Tremewan & Smith, 1973). Another species extending its range in Britain is *Hyloicus pinastri* (Pine Hawk-moth), which was first recorded in Cornwall in Newquay in 1976 (Smith, 1984). Both species feed on Scots pine, which is present at the edge of the Cap Sizun reserve. I was surprised to find a single *Laspeyria flexula* (Beautiful Hook-tip). This species is rare in Cornwall and has only been found three times (Doubeblois 1902, Bodinnick 1961 and Liskeard 1990). It is a woodland species in Britain and at Cap Sizun the larvae probably feed on lichens in the extensive blackthorn thickets covering the cliffs. I recorded a single *Cyclophora punctaria* (Maiden's Blush) at actinic light. This is an oak-feeding species (although I could see no oak nearby) and is rarely recorded in Cornwall (a single was recorded on the coast at Downderry in 1990). The

coastal species *Cucullia absinthii* (The Wormwood) has not been seen for several years in Cornwall, but occurs at Cap Sizun. *Mutuuraia terrealis,* which feeds on goldenrod, has only been recorded in a few places in Cornwall. *Gastrophacha quercifolia* (The Lappet) and *Idaea vulpinaria* (Least Carpet) have not been found in Cornwall for nearly 100 years.

Several species were found which are regular migrants in Cornwall. Some of these species probably breed in Brittany, others are migrants from further south. The single specimen of *Euplagia quadripunctaria* (Jersey Tiger) found at Cap Sizun is probably from a local population, as this species breeds throughout France. The occasional sightings in Cornwall are probably vagrants from Devon or the Channel Islands. Several migrant species were recorded on each night, including *Autographa gamma* (Silver Y), *Peridroma saucia* (Pearly Underwing), *Rhodometra sacraria* (The Vestal), *Udea ferrugalis* and large numbers of *Nomophila noctuella.* It is possible that some of these moths were on their way northwards to Britain. *Agrotis ipsilon* (Dark Sword Grass) was common and probably breeds here in the summer before returning to the Mediterranean region in the winter. *Mythimna unipuncta* (White-speck) was abundant and may be resident here over mild winters. It is spreading northwards in France (Heath & Emmet, 1979). Large numbers were recorded in Cornwall in 1989, some of which may have survived to produce a generation in 1990. I recorded a single *Heliothis peltigera* (Bordered Straw) at Cap Sizun on 19th July. This sub-tropical species is unlikely to breed in Brittany, although I have found it commonly in the Dordogne region 400 miles south of Brittany.

Eleven species (9% of the total) have not been found in Cornwall. *Pleurota bicostella* and *Oegoconia caradjai* have not been found in Cornwall to my knowledge. *Clostera curtula* (Chocolate-tip) and *Eremobia ochroleuca* (Dusky Sallow) are south-eastern species in Britain and have not reached Cornwall. The British subspecies (*bivittata*) of *Coscinia cribraria* (Speckled Footman) is confines to the heathlands of the New Forest, whereas the paler subspecies *arenaria* was abundant on the coast at Cap Sizun, where it was well camouflaged on the lichen-covered granite rocks. *Idaea contiguaria* (Weaver's Wave) is confined in Britain to the Welsh mountains, but was common at Cap Sizun. I found several *Meganola albula* (Kent Black Arches) on the reserve but it has not been found in Cornwall, although it has been found on the Isles of Scilly. A single *Dendrolimus pini* (Pine-tree Lappet) was recorded on 19th June. According to South (1961) this species has been recorded twice in Britain (Richmond Park and in the Norwich Hospital). It has also been recorded in the Channel Isles (Peet, 1989) and is widespread in Europe. I found several *Trachea atriplicis* (Orache Moth), which is now extinct in Britain and the bracken-covered slopes were ideal habitat for *Callopistria juventina* (The Latin), which is a very rare migrant in Britain. I recorded the lovely green-winged moth *Polyphaenis sericata* (which feeds on honeysuckle and privet) in three separate areas of the reserve. This species is not on the British list

but is widespread in Europe as far north as Germany. It is perhaps surprising that *Trachea atriplicis, Callopistria juventia* and *Polyphaenis sericata* have not been recorded as migrants in Cornwall, which is not far from Brittany. It is likely that all these species could survive in Cornwall if they were introduced.

The tentative conclusion I reached in 1989 that the moths of Cap Sizun were similar to those found in Cornwall has not been supported by further study. There were a number of moths on the reserve in July 1990 which are either rare in or absent from Cornwall. Continued study of the reserve may show further species that are foreign to Cornwall and possibly to Britain.

References

Bradley, J.D., Tremewan, W.G. & Smith, A., 1973. *The British Tortricoid Moths.* Volume 1. The Ray Society. London.

Heath, J. & Emmet, A.M., 1979. *The Moths and Butterflies of Great Britain and Ireland.* Vol. 9. Curwen Books. London.

Peet, T.D.N., 1898. *Dendrolimus pini* L., the Pine-tree Lappet (Lep.: Lasiocampidae) in Guernsey. *Entomologist's Rec. J. Var.* **101**: 248.

South, R., 1961. *The Moths of the British Isles.* Warne. London.

Smith, F.H.N., 1984. *A list of the butterflies and moths recorded in Cornwall 1950-1983.* Cornwall Trust for Nature Conservation.

Spalding, A., 1989. Some moths of the reserve Michel-Herve Julien, Cap Sizun, Brittany. *Br. J. ent. Nat. Hist.* **2**: 161-167.

Lithophane leautieri hesperica Bours. (Lep.: Noctuidae) larvae feeding on common juniper (_Juniperus communis_).

At Porton Down on the Wiltshire/Hampshire border two larvae of *Lithophane leautieri* were found feeding on native juniper on 25.v.1990. One was on an old juniper at Blakes Firs near Easton Down in Wiltshire (SU2336) and the other on a younger female juniper on the "Breck" area in Hampshire (SU2538). Both were relatively conspicuous on the foliage and were in the penultimate instar. In captivity both larvae fed on common juniper foliage, and after moulting they went into aestivation in spinnings. One died, but the other emerged as an adult on 17.x.1990.

Although *L. leautieri* has been recorded in continental Europe feeding on *Juniperus communis* (Heath, J. & Emmet, A.M. (1983) *The moths and butterflies of Great Britain and Ireland,* **10**, Harley Books, Colchester), this appears to be the first record for Britain of this native foodplant being utilised. Porton Down has been visited in May every year since 1982 for studies of juniper demography, which include the examination of 200 bushes, and larvae have never been seen before. So it can be assumed that this moth has only recently colonised these large juniper stands. *L. leautieri* is now widely and regularly caught in light traps in West Wiltshire (J. d'Arcy, pers. comm).—L.K. WARD, Institute of Terrestrial Ecology, Furzebrook Research Station, Wareham, Dorset BH20 5AS.

Aneuropria foersteri (Kieffer, 1910) (Hym.: Diapriidae) — a species and genus new to Britain.

On 11.iv.1987 I collected a specimen of the parasitic wasp *Aneuropria foersteri* (Diapriidae, subfamily Diapriinae) crawling amongst downland turf on the White Downs, Surrey (TQ1148). Following consultation with the British Museum (Natural History), as it was then, drawings were sent to Dr Lubomir Masner of the Biosystematics Research Institute of Ottawa who stated that he was "reasonably sure" of its identity.

This is a variable species which has been recorded from most of Europe eastwards to Turkey and also according to Dr Masner (*in litt.*) from Morocco and Iran; there is in addition one isolated record from Central Africa. My specimen was of the brachypterous form which is apparently the commoner. An illustration can be found in Masner, L., and Sundholm, A., 1959, *Casopis Ceskoslovenské Spolecnosti Entomologické,* **56**: 161-168. The said paper also details the synonymy of *Aneuropria* Kieffer, 1911. I thank Drs L. Masner and J.S. Noyes for their help with identification.— D.A. PRANCE, 209 Peregrine Road, Sunbury, Middlesex TW16 6JJ.

A further note on _Scolopostethus pictus_ (Schilling) (Hem.: Lygaeidae)

On 31.iii.1991 I was examining a dead cubically fractured trunk of alder on the River Severn bankside (SO83) near Tewkesbury, Gloucestershire. At a height of some two metres, just above the limit of flood sediment penetration of the wood, I located a *Scolopostethus pictus.* The left antenna was aberrant. The second antennomere was longer than normal, the third almost as long as a normal third and fourth, and the fourth was vestigial.

The finding is in line with my earlier note (Whitehead, 1991, *Ent. Rec.* **103**: 82). A single specimen of the notable staphylinid *Atheta basicornis* (Muls. & Reg.) was also taken in fairly typical habitat, as an addition to the Gloucestershire county list.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcs WR10 3EP.

The Stout Dart, _Spaelotis ravida_ (D. & S.) (Lep.: Noctuidae) — a recent record from south-east Scotland

On 6.ix.1989 I found a dead specimen of the Stout Dart, *Spaelotis ravida* entrapped in cobwebs in an outbuilding on the Bush Estate, near Penicuik, Midlothian (v.c.83; OS Grid ref. NT2463). Although arachnid thoroughness had ensured that the body was well mutilated, the wings were in almost immaculate condition; hence identification posed no problems. The significance of the find only became apparent to me when I saw that Bretherton, Goater & Lorimer (*The Moths and Butterflies of Great Britain and Ireland,* Volume 9) state that it is "not reliably recorded this century in Scotland." The immediate vicinity around the outbuilding consists mainly of unimproved grassland and deciduous woodland border.— K.P. BLAND, 35 Charterhall Road, Edinburgh EH9 3HS.

THE ART OF FEIGNING DEATH — THANATOSIS IN *EUPLOEA* (DANAINAE) AND OTHER APOSEMATIC BUTTERFLIES

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Introduction

Some years ago in the Nilgiri mountains of southern India I did experiments with Danaid butterflies which I had hoped to incorporate into a more general review of the feigning of death among butterflies. Geographical considerations make it unlikely that I shall be able to complete this review in the foreseeable future and the results of my observations in South India are given here, together with a few general remarks. The art of feigning death has been called *thanatosis* (after the Greek for death), and this term will be used here as a convenient short-hand.

The case of *Euploea core* and *E. sylvester*

Among butterflies, thanatosis is best developed in the Nymphalid subfamily Danainae, and among the Danainae it seems best developed in the genus *Euploea*. These are butterflies that are unpalatable to many vertebrate predators, most evidence being in respect of birds. In South India, two similar species were readily available (*E. core* Cramer and *E. sylvester* Fabricius). Their behaviour and re-action patterns did not differ so the results from these two species are pooled.

When a member of either sex of one of these species is handled, by holding the wings and touching the body, the following behaviour is invariably seen:

1. The abdomen is strongly curled downwards. In the male the yellow abdominal hair pencils are extruded. They emit a very pleasant smelling pheremone, the smell of which is readily evident to the human nose and varying from species to species. The female also has yellow patches on the ventral side of the tip of the abdomen, almost as if they were "mimics" of the male hair pencils. This is suggestive that the extrusion of the hair pencils are also intended to have a startling effect. The abdomen of a Danaid is not visible in its normal resting posture.

2. The legs are tucked tightly against the thorax, so that getting a grip even with a pair of tweezers is difficult.

3. The forewings are moved strongly forwards in relation to the normal resting posture, probably to expose as much of the warning colour pattern as possible.

4. The butterfly now rests inert in this position as long as it is still being manipulated, even lightly.

5. Once the specimen is released and laid on a flat surface, the hair pencils are gradually retracted, and the abdomen slowly straightens out, again becoming covered by the anal fold of the hindwings.

6. The forewings are gradually drawn back, significantly decreasing the total exposed surface. In the rare cases where the wings were held slightly open in the preliminary phases, they now close tight.
7. After a variable period of time, the butterfly will start moving its antennae. Shortly after that it rights itself abruptly, usually flying off immediately it is upright.

By and large this sequence was executed also by other Danaid genera tested in South India, but the extrusion of the hair pencils was infrequent in the genera *Danaus* (two species), *Parantica* (two species), and *Idea* (one species); two *Tirumala* species extended the hair pencils in about half of all tests. These species tend to have grey or brown hair pencils, not the brilliant egg-yolk colour of the *Euploea,* and may therefore have less of a startling effect.

Experiments in the Nilgiri Mountains

In the Nilgiri Mountains I brought back to my house a few live, papered Danaids after each of my collecting trips (April-October 1986). They were released in a room till the following morning. When it was fully light and the butterflies began flying spontaneously, they were caught by holding the discal area of the forewings with two fingers. They were then given a very light pinch on the thorax with two finger tips. When the abdomen immediately began to curl, it was rubbed lightly with the tip of a finger nail. This was meant to simulate a tentative predator attack. The butterfly was then placed on a sheet of newspaper in full light, but not in direct sunlight. The amount of time spent inert was noted:

Table 1. Time spent in thanatosis by two *Euploea* species.

Seconds	Males	Females	Total	Percent
— 30	2	6	8	9.1
31 — 60	7	9	16	18.2
61 — 120	7	6	13	14.8
121 — 180	11	4	15	17.0
181 — 240	5	4	9	10.2
241 — 300	5	2	7	8.0
301 — 600	4	4	8	9.1
601 — 900	7	1	8	9.1
900 + *	4	0	4	4.5
Total	52	36	88	100.0

* Actuals were 2280, 2220, 1800, and 1100 seconds, i.e. between 38 and 18 minutes.

It will be seen from the table that only a few specimens flew away more or less immediately after being handled, the majority of these staying almost 30 seconds. Twenty percent of the sample were inert for between 30 seconds and a minute. Half the sample was inert for between one and five minutes, while the remaining quarter of the sample spent more than five minutes in thanatosis, with a maximum of 38 minutes in a male of *Euploea core*. The median time spent in thanatosis was two to three minutes. There is a tendency for females to spend slightly less time in thanatosis than males, with a maximum of 12 minutes in *E. core*. I obtained very similar results with about 100 *E. core* in New Delhi, but the notes are not available.

Smaller numbers of other Danaid genera show a similar pattern, with a specimen of *Tirumala septentrionis* Hewitson at a maximum of 30 minutes and a *Danaus genutia* Cramer at 17 minutes.

Why thanatosis?

The purpose of thanatosis seems to be to stop a predator attack before serious damage has been done, in order that (1) the prey may escape, since the predator believes it to be subdued; (2) the prey has the opportunity to deploy some other defensive mechanism; or (3) the predator has time to discover that the prey is inedible or unpalatable.

Some harmless snakes and lizards fall in the first category, flipping over on their backs, lying inert, and then suddenly making a dash for it. The click beetle feigns death in order to deploy its splendid escape mechanism and falls in the second category.

Danaid butterflies are usually unpalatable or even noxious, not least in respect of insect-hunting birds (many examples are given by Ackery & Vane-Wright 1984). They therefore fall into category (3). The median time of two to three minutes in thanatosis would appear to be a suitable length of time to ensure that the predator has abandoned the attack. Two naîve kittens were given *Danaus chrysippus* and various unpalatable moths in Botswana; most survived a considerable amount of pawing, in some cases feigning death for more that an hour, finally being completely ignored by the kittens.

The advantages of thanatosis in Danaid butterflies are enhanced by their being much tougher than most other butterflies. It can be quite difficult to kill them with the traditional pinch of the thorax. This toughness combines with the neophobic approach to prey characteristic of many predators. They will swallow an unfamiliar prey item only after careful assessment and may well recognise a Danaid as unpalatable before lasting damage has been done.

A quick survey of the Lepidoptera will show that thanatosis *and* toughness of the integument (especially the thorax) is largely, perhaps exclusively, limited to unpalatable species of the type that are models in mimicry complexes: *Pachliopta, Atrophaneura* (Papilionidae); *Delias,*

Pereute (Pieridae); many Acraeinae, Ithomiinae, Heliconiinae, *Cethosia* (Nymphalidae); many Zygaenidae, Ctenuchidae, and Arctiidae (Heterocera).

I cannot recall any butterfly which displays thanatosis for which there is not good evidence that it is also unpalatable. There are, however, unpalatable butterflies which have not developed strong integuments, especially in the Pieridae, but this seems to be mainly in genera where only some species are unpalatable, and which appear less specialised than those mentioned above (*Pieris brassicae* Linne being a good example).

On the other hand, among the butterflies, I know of only two species which are apparently palatable and yet have tougher integuments than even the Danainae. One is the virtually indestructible *Thaduka multicaudata* de Niceville (Lycaenidae: Theclinae). Even the strongest pressure on the thorax with a pair of nails, accompanied by audible cracking of the thorax, fails to do damage. In the evening it will fly out seemingly undamaged from its paper. *Bibasis sena* Moore (Hesperiidae: Coeliadinae) is almost as tough. They are, however, very much exceptions to the rule, and their toughness is not shared with their closest generic relatives in southern India. There may be more examples among the Heterocera (e.g. the Cossidae).

Conclusion

Thanatosis, in various guises, is common throughout the animal kingdom. However, at least among butterflies it normally seems to have co-evolved with unpalatability *and* the development of a particularly tough integument. Since all three elements have co-evolved independently in a number of different butterfly families their combination appears to have particularly strong survival value.

Reference

Ackery, P. & Vane-Wright, R.I., 1984. *Milkweed butterflies.* British Museum (Natural History). London.

Sedina buettneri Her., Blair's Wainscot (Lep.: Noctuidae) in Kent.

A single male *S. buettneri* was caught in the Rothamsted Insect Survey (R.I.S.) light trap at Lydd, Kent (Site No. 462, OS grid ref. TR 044 203) on 2.x.1987. *S. buettneri* was known to occur at Freshwater Marsh, Isle of Wight, from 1945 to 1952 (Skinner, 1984). Its history at Freshwater, and accounts of its biology, are given by Blair (1946; 1950; 1951), Tams (1946), Robinson (1950) and Heath & Emmet (1983).

There were no further records of this species in Britain until an individual was caught at mercury vapour light by Tweedie (1967) at Playden, near Rye, E. Sussex on 14.x.1966. There were few primary migrant Lepidoptera recorded during October 1966 (B. Skinner, pers. comm.). Following this record, B. Skinner and K. Satler made an extensive search of Romney and

Romney and Winchelsea Marshes but failed to find the larval foodplant, *Carex acutiformis* (B. Skinner, pers. comm.). A further specimen was caught at light by J.T. Radford at Walberton, W. Sussex on 30.ix.1985 (Bretherton and Chalmers-Hunt, 1985). This capture was accompanied by many immigrant species and it was assumed that the *S. buettneri* was of continental origin.

As no migratory species were caught in the R.I.S. trap at Lydd, or at nearby m.v. light traps at Dungeness, on the night the present record was made, it was felt possible that *S. buettneri* was resident in the area. Consequently, research into possible breeding sites was undertaken. J. Badmin (pers. comm.) states that no *Carex acutiformis* was found by members of the Kent Field Club in an extensive survey in 1985 of the pits around Dungeness Point and Skinner and Satler (loc. cit.) had already failed to find this plant in the Romney Marsh area. However, Forster and Wohlfahrt (1963-71) state that the larva of *S. buettneri* occasionally feeds on *Glyceria.* Further, Heath and Emmet (1983) state that larvae accept *G. maxima* in captivity. Consequently, it seemed possible that *S. buettneri,* if resident, could be utilising an alternative foodplant. Several other *Carex* spp. occur in the area (J. Badmin, loc. cit.) and *G. maxima* and *G. fluitans* are not uncommon in the Romney district (Skinner, pers. comm.).

Contradictory opinions were given regarding the origins of the extinct Freshwater colony. Heath and Emmet (loc. cit.) suggest that it was probably a recent colonist rather than a long-established resident. However, Blair (1950) believed the species may have occurred at Freshwater prior to the extension of the Marsh when, before 1914, the area was primarily grazing land intersected by drainage ditches. He suggested that small populations could have been maintained in the network of ditches. As Romney Marsh is primarily agricultural land intersected by such ditches, it was assumed that this might be the case in Kent.

In 1988 and 1989, Ian Woiwod ran m.v. light traps on the edge of a large gravel pit near Lydd and also at a nearby drainage channel. These appeared to be the two most likely sites in the immediate vicinity of the Lydd trap. However, the weather was unsuitable with heavy rain and low temperatures. Very few moths were recorded and *S. buettneri* was absent from the catch.

Another expedition was mounted in October 1990. Three m.v. lights over sheets were operated at the same gravel pit, sugar was spread on posts and trees near the pond margins and searches were made by torchlight. However, the sky was clear and the temperature dropped quickly after dusk. Again, very few moths were caught and no *S. buettneri* were seen. No further attempts to find this species have been made.

Whether the Lydd record represents an immigrant or a resident is still uncertain. The fact that no primary migrants were recorded at the time of capture suggests the latter. Intensive trapping specifically to catch

immigrant Lepidoptera takes place on Dungeness shingle every year during October. *S. buettneri* has never been caught by such means so it is unlikely to be resident in that area.

Provided *S. buettneri* is able to utilise an alternative larval foodplant, it is possible this species could maintain itself in the system of drainage ditches around Romney Marsh. There is much suitable ground on Welland Marsh between the records at Lydd and Playdon. Blair (1951) states that it is a feeble flyer " . . . not given to wandering far from its breeding ground" and Heath and Emmet (1983) observe that, although it is attracted to lights placed deep inside a colony, mercury vapour lights outside the marsh edges are less effective. Consequently, sites and methods used to search for this apparently sedentary species must be carefully chosen.

Thanks are extended to A. Heath for operating the R.I.S. light trap at Lydd and for arranging permission to run m.v. lights on private land. Also I. Woiwod, M. Townsend, I. Wynne and D. Riley for operating m.v. lights in search of this species and to B. Skinner and J. Badmin for their helpful advice.

References: Blair, K.G. (1946). Notes from Freshwater, Isle of Wight, including a Wainscot (Lep.: Agrotidae) new to Britain. *Ent. mon. Mag.* **82**: 140-141. Blair, K.G. (1950), Notes on the life history of *Sedina buettneri* Hering (Lep.: Caradrinidae). *Ent. mon. Mag.* **86**: 47-49. Blair, K.G. (1951). *Sedina buettneri* Hering at Freshwater, Isle of Wight. *Entomologist's Gaz.* **2**: 249-252. Bretherton, R.F. & Chalmers-Hunt, J.M. (1985). The immigration of Lepidoptera to the British Isles in 1985. *Ent. Rec. J. Var.* **98**: 223-230. Forster, W. & Wohlfahrt, T.A. (1963-71). *Die Schmetterlinge Mitteleuropas.* Stuttgart. Heath, J. & Emmet, A.M. (1983). *The moths and butterflies of Great Britain and Ireland,* Vol. 10. Harley, Colchester. Robinson, H.S. (1950), *Sedina buettneri* Hering. *Entomologist's Gaz.* **1**: 150. Skinner, B. (1984). *Colour identification guide to the moths of the British Isles.* Viking, Harmondsworth. Tams, W.H.T. (1946). The discovery of *Sedina buettneri* Hering (Lep.: Agrotidae) in the Isle of Wight. *Entomologist* **79**: 215-218. Tweedie, M.W.F. (1967). Exhibits — annual exhibition. *Proc. Trans. S. Lond. Nat. Hist. Soc.* 1967: 112.—ADRIAN M. RILEY, AFRC Farmland Ecology Group, Dept. Entomology and Nematology, Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

Hazards of butterfly collecting — the art of playing dead, India 1952.

Elsewhere in this issue appears a short note on the art of playing dead, *thanatosis,* a subject which has interested my since I first came into contact with it when living with my parents in New Delhi, India. This was where my interest in butterflies began, at the age of seven, and one of my mentors in this respect was the Common Tiger (*Danaus chrysippus),* a very common butterfly in those parts, and one of the largest and most beautiful of the fauna.

By the time I was eight I had worked out reasonably fully, and independently, the mimicry relationship between *Danaus chrysippus* and its superb mimic, the Diadem (*Hypolimnas misippus*). I still remember how much a let-down it was when I found out that this splendid discovery had

been made before. The *inaria* form of *Danaus chrysippus* without black and white wing tips, while common in East Africa and parts of Arabia, is exceedingly scarce in India, and I still remember the anguish with which I made the decision to give my only specimen to the "Pusa Institute" — in exchange for which I was given my first cyanide jar and assurances that my mother would never be told exactly what it contained.

Danaus chrysippus was also the first butterfly I bred, and I was both horrified and intrigued to find that larvae would engage in cannibalism, devouring the pre-pupae and freshly moulted pupae of their siblings or cousins. A notebook from those days says "that maybe this is because the leaves of the foodplant (*Calotropis*) are difficult to keep fresh and there are too many caterpillars in the box", which seems about right.

So, while I have every reason to remember this butterfly as a budding entomologist, it is in fact as an entertainer *manque* that the most vivid memory persists. I had noticed thanatotis, and though I could not yet come up with an explanation, I did mange to put it to good use.

When I was about nine, on the occasion of some worthy international children's day or something, I was selected as Danish participant in an international show of kiddy talent. Danny Kaye was to be in the audience, in his capacity as ambassador for UNICEF, and I had to come up with a routine. So imagine, if you will, the following scenario:

The stage is all set; three worthy members of the audience (we decided that including Danny Kaye would be too intimidating) are seated on stage in comfortable chairs as witnesses; yours truly is waiting in the wings. The master of ceremonies announces the next number: "Dead butterflies that fly!" At this point I enter from the left, for heightened effect on roller-skates, with a very dead-looking *Danaus chrysippus* in my right palm. It is duly pronounced not to be alive by the three witnesses. I proceed to the right of the stage, push off triumphantly on the roller-skates as fast as possible, and when passing the witnesses toss the butterfly into the air, from where it promptly and very much alive departs to the delight (I seem to remember) of the audience. I exit to the left of the stage to the applause (I seem to remember) of the audience, and the Indonesian folk dances begin.

This was my first and last foray into show business. *Danaus chrysippus* is doing rather better at holding centre stage. Its biochemistry has been studied in much detail, showing that being aposematic is not an either/or situation, giving rise to the concept of the palatability spectrum within a model. Its polymorphism has been the subject of considerable work, and many papers have been written about its mating and other habits. During the last decade it has begun to figure frequently in the European butterfly literature, because it has invaded the Mediterranean basin to an extent which has not happened before. Though I suspect that the Mediterranean populations may well be wiped out by a couple of severe winters, others have already heralded the phenomenon as the first effect of global warming.—TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Green-veined White (Pieris napi) **ovipositing on parsley piert (*Aphanes arvensis*)**

In early June, 1990, whilst walking along a farm track at Steeple Ashton in Wiltshire, I became aware in the distance of a "white" butterfly which according to its progression I considered to be searching for suitable sites for ovipositing. When the distance between us had closed sufficiently, I was able to determine that the insect was a Green-veined White and that she was in fact going through the motions of egg-laying. What intrigued me was that she carefully selected at intervals a leaf of her choice on various plants of parsely piert. There was no deviation in her choice of pabulum and there were no cruciferous plants on this particular track. I marked two of the sites which she had visited and discovered a single egg under each leaf. As the plants were very prostrate this was a "hands and knees" job. In this short time she had disappeared.

Unfortunately, I was there to investigate how some of our cattle had gained access into the neighbour's cornfield and I did not take the ova to rear them through on this particular pabulum. As far as I am aware, the Green-veined White is only associated with cruciferous plants. *Aphanes arvensis* is a member of the Rosaceae and would seem to be an unlikely or unexpected foodplant.— M.H. Smith, 42 Bellefield Crescent, Trowbridge, Wilts.

Suicidal behaviour in invertebrates

A tendency for suicidal behaviour is not restricted to lepidoptera (J. Koryszko, *Ent. Rec.* **103**: 118). On 22.v.1991, I was sitting outside a taverna in Elounda, Crete. As the cup of hot water arrived, plus tea bag, three flies (resembling house flies, *Musca* species) simultaneously dived into the cup and instantly died.— Denis Townsend, 8 Cornwall House, Ravendale Drive, Lincoln LN2 2BU.

A further record of *Nascia cilialis* Hb. (Lep.: Pyralidae) in Hampshire

Subsequent to Mr P.M. Pott's note regarding the distribution of this local pyralid in Hampshire (*Ent. Rec.* **102**: 191) it may be of interest to record the capture at MV of a single male specimen at West Wood, Winchester, Hampshire on the night of 23rd May 1989 by Mr S. Swift when out trapping together. Whilst this does not prove the existence of a colony, further investigation would seem warranted. Our thanks to Mr Barry Goater for his positive verification of the specimen captured.— J.W. Phillips, 16 Grove Road, Havant, Hants PO9 1AR.

***Xylena vetusta* Hb., the Red Sword-grass (Lep.: Noctuidae) in south Essex in December 1990.**

On the night of 29.xii.1990, I was delighted to find a specimen of this species inside my Robinson trap. The capture of this insect on a cold evening in late December is made more surprising as this is my only record of *vetusta* in 16 years of almost continuous recording. My father, A.J.

Dewick, has taken this species here on a few occasions, but not since 1982.

Skinner (*Colour Identification Guide to Moths of the British Isles,* Viking, Harmondsworth, 1984) states that *vetusta* is "resident, reinforced in southern England by immigration." In view of the extreme scarcity of this species here, perhaps it is likely that my specimen had arrived with other imigrants during the autumn and then hibernated.— S. DEWICK, Curry Farm, Bradwell-on-Sea, Essex.

Early sightings of *Macroglossum stellatarum* L. in east Sussex

At an amphibians open day at Woods Hill in April 1991, I was told of two early sightings of *Macroglossum stellatarum.* The first was seen on 18.iv.1991 on a sunny wall outside the Black Horse pub in Lewes. Later on the same day, my informant saw one hovering by a patch of valerian flowers in his garden on the other side of Lewes.— DENNIS DEY, 26 Manor Avenue, Hassocks, West Sussex BN6 8NG.

A further Welsh record of *Hadrognathus longipalpis* (Mulsant & Rey) (Col.: Staphylinidae)

Hadrognathus longipalpis was recently added to the British list by Lott (1989). It is a distinctive omaliine staphylinid with more recently recognised populations in south Wales (Holmes, Boyce and Reed, 1990).

Lott (op. cit.) first located *H. longipalpis* in Cumbria, whilst the Welsh records result from the Welsh Peatland Invertebrate Survey of the Nature Conservancy as was. This survey found *H. longipalpis* in the Watsonian vice-counties of Carmarthen, Glamorgan and Brecon.

In Europe, *H. longipalpis* is more or less montane, largely within influence of Atlantic Ocean-influenced weather systems. All of the Welsh records to date show *H. longipalpis* between 5 and 330 metres altitude, demonstrating that in the principality, it is not exclusively montane.

I can now add a further record for the Brecon Beacons when I encountered a specimen in SO 02 (in the Llanfrynach area) on 13.iv.1991 at 661m O.D. The specimen was found in damp moss amongst *Juncus inflexus* L. on a grazed hillside during a substantial survey of beetles in the area, with two people working simultaneously. It seems therefore that *H. longipalpis* is genuinely local at the site.

It appears that the spread of *H. longipalpis* in western Britain is both mildly explosive and continuing, and is a good example of rapid colonisation of a "natural" habitat. The establishment and colonisation-rate of *H. longipalpis* has few recent parallels in the British fauna; its spread appears dramatically faster than *Leistus rufomarginatus* (Duftschmid) (Col.: Carabidae) and it may well compare with that of the Collared Dove in the British avifauna. It will be interesting to see how far north *H. longipalpis* reaches. What is clear is that perhaps by specialisation rather than direct competition, *H. longipalpis* has created a niche for itself in a long established biological system.

There is a direct maritime route from Britain to Santander in Northern Spain and a good body of evidence for exotic insects to be transported in caravans. In fact, the possibilities are legion — it could even have arrived here in damp moss collected for hanging baskets! The risk of desiccation presumably militates against unassisted long-distance travel.

On the Brecon Beacons *H. longipalpis* shared the habitat of the following beetles dominated by *Amischa analis* (Gravenhorst) (33%) and *Hypnoidus riparius* (Fabricius) (22%) with *Bradycellus harpalinus* (Serville) (1%) with virtually blackened antennae, *Gabrius subnigritulus* (Reitter) (1%), *Quedius boops* (Gravenhorst) (2%), *Boreophilia* spp. (identity not pursued for the moment following discussion with Mr A.A. Allen) (5%), and the rare (sometimes montane), wide-ranging, hygrophilous species *Oxypoda procerula* Mannerheim (1%). Notable beetles nearby were *Carabus arvenis* Herbst. and *Acidota crenata* (Fabricius).

I wish to thank Mr A.A. Allen and Mr P.R. Holmes (Welsh Peatland Invertebrate Survey) for advice on specific matters.

References: Holmes, P.R. Boyce, D.C., & Reed, D.K., 1990. *Hadrognathus longipalpis* (Muisant & Rey) (Col.: Staphylinidae) in South Wales. *Br. J. Ent. Nat. Hist.* 3: 192. Lott, D.A., 1989. *Hadrognathus longipalpis* (Mulsant & Rey) (Col.: Staphilinidae) new to the British Isles. *Entomologist's Gaz.* **40**: 221-222.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcestershire WR10 3EP.

Magpie moth, *Abraxas grossulariata* (L.), (Lep.: Geometridae) and other caterpillars on gooseberry, *Ribes uva-crispa,* in south Cumbria

I was interested to read B.K. West's paper (*Ent. Rec.* **103**: 89-92) discussing the decline in urban populations of *A. grossulariata* (in N.W. Kent in particular) as possibly being connected with an abandonment of gooseberry and other *Ribes* species, and *Euonymus japonicus,* as foodplants. Urban populations may have suffered similar declines quite widely; for example, among the 200 or so literature citations for *A. grossulariata* listed in the Scottish Insect Records Index (see Shaw, *Ent. Rec.* **99**: 37-38 for an account of this resource) there are enough that specify foodplant to show that, at least in the East, gooseberry and *E. japonicus* were also regularly used in and around Scottish towns when the moth sometimes locally reached pest status up to and including the middle third of this century, since when it seems to have declined considerably.

When I lived in Reading and Oxford in the late 1960s and 1970s I remember that *A. grossulariata* occurred commonly on *E. japonicus* in quiet parts of the towns and on *Prunus spinosa* in the countryside. Perhaps I rarely looked, but the only time I can recall seeing larvae on gooseberry was in my parents' garden in Drayton St Leonard, a relatively isolated Oxfordshire village, as recently as 1989. Prompted by West's article, I took advantage of a long weekend at the end of May 1991 at Beetham, just in

Cumbria near the Lancashire border, to see whether in this rural setting the fairly numerous patches of gooseberry growing wild in hedges and in woodland supported *A. grossulariata* larvae.

The results of this investigation (in which I was greatly helped by my daughters Zerynthia and Melitaea) were very interesting, as all of the species of lepidopteran larvae found had a clear-cut preference for either fully exposed plants or those growing in almost completely shaded situations. *A. grossulariata* was present on most gooseberry bushes in sunny hedgerows but entirely absent on plants in full shade. Altogether 46 were collected from about ten well separated stands. The behaviourally similar larvae of the geometrid *Semiothisa wauaria* (L.) were also found only on gooseberry growing in the sun (15 on four stands), as were about 15 larvae of the noctuid *Conistra* sp. (probably *vaccinii* (L.)), collected more or less singly (and feeding also on other plants). In complete contrast, larvae of the geometrid *Eulithis prunata* (L.) were found only on more or less fully shaded gooseberry in woodland understorey (22 on eight stands), and no other Lepidoptera were found on such plants.

A large colony of *A. grossulariata* was also found, more or less accidentally, on a hedgerow stand of *Prunus ?cerasifera,* and in another place a few larvae were noticed feeding on *Corylus avellana,* again in a sunny hedge. The tachinid fly *Phryxe nemea* (Meigen) had found a few of the *A. grossulariata* on each of the three foodplants from which they were collected, but parasitism was at a very disappointingly low level overall — and certainly did not stand any comparison between plant (or even Lepidoptera) species.

Whether the demonstration that in rural N.W. England gooseberry continues to support *A. grossulariata* has any bearing on West's observations on foodplants in N.W. Kent is debatable, but I wonder whether it might be merely attrition from factors such as the increased levels of electric street lighting, garden pesticides and pollution from road traffic, rather than a change of diet as such, that has harried *A. grossulariata* from previously favourable urban and suburban environments generally?— MARK R. SHAW, National Museums of Scotland, Chambers Street, Edinburgh EH1 1JF.

Utetheisa pulchella L. the Crimson-speckled Footman (Lep.: Arctiidae) in the Channel Isles

The contributions by J. Clarke and A.M. Riley in the March-April 1991 issue of the *Entomologist's Record* (**103**: 69 and 100) recording the capture of five specimens of *Utetheisa pulchella* in Cornwall and Devon have stimulated me to report the two seen in the Channel Islands at about the same time.

On 2.x.1990 D. Buxton showed me the five specimens which had come into his kitchen in Vallée des Vaux, Jersey, an inland valley about two miles north of Saint Helier. This was two days after the first of the English

specimens, and R.A. Austin informs me that on the following day, 3.x.1990, one came into the kitchen of Mrs J. Wells in Saint Martin, Guernsey, about two miles south-west of Saint Peter Port.

During the previous day or two the islands had been having mild, southerly winds but I am not aware of any other migrant species of note being found.

The only other Channel Islands' records of *U. pulchella* are of two in Guernsey in 1889 and one in Jersey in 1968.— R. LONG, Ozarda, Saint John, Jersey, Channel Islands JE3 4FP.

***Eriogaster lanestris* Linn., the Small Eggar (Lep.: Lasiocampidae) in south Norfolk (v.c.27)**

Upon returning from a walk recently (late June 1991) my wife commented on having seen several webs of caterpillars in a length of Norfolk hedge, beside the main A143 Diss to Great Yarmouth road. Having been aware that *Eriogaster lanestris* had been reported in this part of Norfolk — three webs of caterpillars in Hargham Road, Attleborough in June 1990 (Paul Cardy pers. comm.); a single adult to light at Rocklands, near Attleborough, in the spring this year (Jane Lee pers. comm.) and four webs reported from New Buckenham Common on 22nd June 1991 (Steve Ward pers. comm.) — I was anticipating a further site for the return of this species to Norfolk.

As I approached the stretch of road in Billingford, near Diss, I could see several webs in the hedge whilst I was driving along. These were just the large nests as I discovered when I walked the length of this particular piece of hedge, between a pond and a road junction. In the distance of a quarter of a mile I counted 73 webs, of which four were on elm, two on blackthorn and the remainder of hawthorn. These were all on the south facing road side of the hedge to the north of the road. I walked back to my car, counting webs along the north facing side of the hedge to the south of the road and recorded another eleven, with nine on hawthorn, one on elm and one on a small scrubby spindle bush which was almost totally defoliated. Because of tall crops, and recent heavy rain, I did not look on the field side of either of these two roadside hedges, but would assume that there were further webs to be found.

I did walk a further 250 yards northwards from the road junction at the eastern end of the first hedge surveyed and counted another eleven webs in the east facing hedge alongside this road — all these on hawthorn. On the opposite west facing hedge there were only four webs to be seen — one on hawthorn and three on elm. After 200 yards from the corner there were no more webs to be found.

The lengths of hedge where *Eriogaster lanestris* larval webs were so prolific are all well maintained, and regularly cut mechanically, with only the current year's growth standing out from the dense body of the shrubs. Other more straggly, and infrequently cut, hawthorn bushes and the short,

isolated stretches of similarly maintained hedgerow, within the immediate vicinity had no sign of the webs.

The majority of the webs were moderately small, but there was a proportion of much larger, really obvious, webs scattered throughout the whole length of the infestation. These were very obvious, even when driving past, particularly when I was specifically looking for them. The larvae were in all growth stages from second instar to fully mature, with several seen to be moving away from their communal feeding and living grounds.

I carried out a fairly comprehensive, but not intensive, survey of several miles of apparently suitable hedgerow within a three mile radius of the webs discovered at Billingford and saw no evidence of the larger webs that were so noticeable initially.

It seems most remarkable that along some 700 yards of roadside hedgerow there are 99 webs of *Eriogaster lanestris* larvae to be found and yet no others, apparently, anywhere in the immediate vicinity. This species was recorded by Barrett (1901) as "Plentiful in some seasons, its larvae forming large silken nests on the hawthorn hedges" but has not been in evidence in recent records. Skinner (1984) blames its serious decline in recent years on the wholesale destruction and indiscriminate trimming of hedgerows, combined with pollution from motor vehicles and the drift from agricultural pesticides.

From the very limited evidence from these few observations it seems possible that *Eriogaster lanestris* is making a resurgence at the moment and, certainly at Billingford, it is thriving on well-trimmed hedges, beside a major road, in an area of intensive arable agriculture so perhaps its decline could be attributed to other causes, or it is adapting to late 20th century conditions. The use of both elm and spindle as larval foodplants may also indicate adaptability, as neither are mentioned in Allan (1949) or Scorer (1913).

References. Allan, P.B.M., 1949. *Larval Foodplants.* Watkins and Doncaster. London. Barrett, C.G., 1901. Lepidoptera. In, *Victoria History of the Counties of England,* Norfolk, **1**. ed. H.A. Doubleday, 142, Archibald Constable, Westminster. Skinner, B. 1984. *Colour Identification Guide to the Moths of the British Isles.* Viking. Middlesex. Scorer, A.G., 1913. *The Entomologist's Log-book.* George Routledge. London.

M.R. Hall, "Hopefield", Norwich Road, Scole, Diss, Norfolk IP21 4DY.

***Scotopteryx peribolata* (Hb.), the Spanish Carpet (Lep.: Geometridae) at Studland, Dorset.**

On 12th September 1990, whilst running an m.v. trap on Shell Beach, Studland, Dorset, I recorded a single specimen of *Scotopteryx peribolata* (Hb.). The specimen, a male, was somewhat worn and I am grateful to Brian Baker and Norman Hall for confirming its identity.

According to Bernard Skinner (*Colour Identification Guide to the Moths*

of the British Isles, 1984) the species is well established in the Channel Islands but there are only three previous records from the British mainland. I have been unable to trace any records of this species since 1984.— D.A. YOUNG, 32 Valley Road, Burghfield Common, Reading, Berkshire.

Abundance of *Omphaloscelis lunosa* Haw., the Lunar Underwing (Lep.: Noctuidae) in 1989 and 1990

I read with interest R. Fairclough's note in the *Entomologist's Record* (**103**: 40) relating to the abundance of *Omphaloscelis lunosa* at Leigh, surrey. At Ninfield, East Sussex, this is also a common species. However, in 1989 on the 21st, 24th and 25th September, this species was so numerous that I noted the species as abundant (not having the time to count numbers more accurately). Only on 23rd September did I estimate the number of individuals present, recording a figure of 450+.

In 1990 I was only able to run the trap on two occasions in late September; on the 28th, when I again recorded the species as abundant, and on 29th September when I conservatively estimated that 2,100 individuals were present.— M.PARSONS, The Forge, Russells Green, Ninfield, East Sussex.

***Meligethes haemorrhoidalis* Förster (Col.: Nitidulidae) in Surrey**

Two specimens of this species which was recently added to the British List (Parry, J.A., 1990, *Entomologist's mon. Mag.*, **126**: 237) were collected on 31.iii.1991 from flowers of *Narcissus* by a stream on Bookham Common (TQ1255). Their identity was confirmed by dissection. Parry records the beetle from Southern England, with the site of discovery in Kent and one assumes that the above find is part of a continuing spread. I thank the National Trust for permission to collect at Bookham.— D.A. PRANCE, 209 Peregrine Road, Sunbury, Middlesex TW16 6JJ.

***Argyrotaenia ljungiana* (Thunb.) — a surprising foodplant**

I was interested to read the notes by A.A. Allen (*Ent. Rec.* **102**: 8) and C.W. Plant (*ibid.* 188) since the species had become very common in Grays, Essex over the last few years. It was particularly common near the entrance to Grays Chalk Quarry where much Sainfoin grew, and I was keen to discover whether this might be a foodplant but never managed to establish it as such.

On 20th April 1991 I was collecting leaves of *Pyracantha* from a site in West Thurrock as part of a survey concerning the spread of *Phyllonorycter leucographella* (Zell.). The same afternoon when I had returned home amidst snow showers I was surprised to find that a moth had already emerged — the more so since it was *A. ljungiana*. Two days later, 22nd April, a further specimen emerged from leaves of *Pyracantha* from Hackney, London E8, where they had been collected on 10th April. It

seems most unlikely that this is the only foodplant in urban areas so this species is probably polyphagous on a wider range of plants than was formerly thought.— DAVID AGASSIZ, Centre for Population Biology, Imperial College at Silwood Park, Ascot, Berks SL5 7BS.

BOOK REVIEW

A Coleopterist's Handbook by **Jonathan Cooter.** 3rd edition 294pp. Boards. The Amateur Entomologists' Society. 1990. £14.00.

Like earlier editions, this multi-author handbook aims "to give advice and guidance" to those wanting to become coleopterists. About one third is devoted to the practicalities of finding, identifying and preserving beetles, about a third to accounts of beetle families as they occur in Britain and the remainder to the matters of beetle larvae and their rearing and to conservation as it relates to coleopterists and other entomologists. There is a glossary of terms and an index to beetle genera referred to in the text.

Perhaps of most value to the beginner will be the accounts of where and how to look for beetles and how to catch them. The use of a number of different nets and traps is described and the various natural and man-made habitats of beetles catalogued. Caution is needed, however, before some of the advice offered is accepted. Thus, the glycol-based (anti-freeze) solution recommended for use in pitfall traps will make many specimens so rigid that they will be virtually useless as cabinet specimens. Again, the suggestion that trays used in a flight interception trap inspected daily need only corrugated card to trap intercepted beetles is unlikely to be satisfactory; many intercepted beetles dropping into the trays will simply fly off again or crawl out when it gets dark. Moreover, it is going to be much more stressful harvesting small, live beetles such as ptilids and pselaphids from 20 or so pieces of corrugated card every day than picking them out from an aqueous medium in the usual way. As far as identifications go, the required equipment and books are listed and there is a clear description of the process of examining beetle genitalia, a cornerstone of modern taxonomy. There is also an excellent account of the conventions used in scientific nomenclature.

The section providing accounts of beetle families is perhaps the least satisfactory part of the handbook. You cannot really describe beetle families for beginners without adequate illustrations which, these days, means colour. The very few illustrations of adults beetles are undoubtedly excellent in detail but they lack scales so that a beginner will not know what size of creature is depicted. The coverage of the different families is very uneven, no doubt because different authors were involved. Thus, accounts of some families include long bibliographies or list of species not included by Joy in his well known handbook or accounts of the status of species in Britain while others provide none of these. One cannot help feeling that it would have been better to refer beginners wishing an overview of beetle

families to one or more of those publications on British beetles, replete with coloured illustrations, which are already in bookshops.

The chapter relating beetle species to plant species represents the outcome of a formidable exercise and provides a wealth of information for use in searching for individual species. One wonders, however, whether the information ought not also to have been given put the other way round — the beetle species associated with particular plants or plant groups (as in the first edition of the *Handbook*). Thus, as mentioned in the weevil section, a series of the same weevil shaken from Dyer's Greenwood is very likely to be *Apion dificile* and looking at a list of beetles associated with this plant would give the beginner an immediate clue to its identity. True, this particular beetle-plant association is contained in the chapter as written but the beginner may well have difficulty in finding the place.

It is very nice to note in the *Handbook* such good account of beetle larvae and how they may be reared. Indeed, there are more figures of different beetle larvae in the *Handbook* than of different beetle adults. For long, rearing or breeding insects has been mainly the province of lepidopterists and only relatively recently have coleopterists realised that beetles, too, can be reared or even bred. Indeed, a number of beetle species, such as many of the wood-inhabiting elaterids are more easily found as larvae than as adults.

The Handbook ends with a section on conservation of insects which very clearly spells out for coleopterists the problems which have to be solved if some of our beetle species are still to inhabit Britain a hundred years from now. There is much to ponder on in this section. One might wonder, after reading it, whether a coleopterist in seeking beetles from a wasps' nest is really justified in pouring "ammonia . . . over the nest", killing the wasps and probably all the other invertebrates present as well. It might, too, have helped beginners to adopt conservation-friendly techniques if some of the advice carried over from the first edition, such as "Bracket fungi . . . (or dry bark) . . . may be ripped off" had been rephrased to encourage a more gentle approach to the environment.

The *Handbook* would have been improved with a general index covering, for example, terms such as "autocatcher" which is explained in the section dealing with summer activities rather than, as might be expected, in the section dealing with collecting equipment. Likewise without an appropriate index, locating references to insects of other orders or to plants is not at all easy. The layout and type-style used make for easy reading but I noticed quite a few misprints, such as "laural", "teasle", "*Amara intima*", "*Dasytes caerulenus*" and "*Oberia*".

Even with its failings, this book is good value for money and should be in the hands of every would-be coleopterist. Many of those who have passed the tenderfoot stage will find it contains material of interest and value to them also.

J.A. Owen

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Notes and Observations

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A DESCRIPTION OF THE ADULT AND EARLY STAGES OF *PHYLLONORYCTER PLATANI* (STAUDINGER, 1870) (LEPIDOPTERA: GRACILLARIIDAE)

A.M. Emmet

Labrey Cottage, Victoria Gardens, Saffron Walden, Essex CB11 3AF.

IN MY PREVIOUS paper (*antea,* p.1) I narrated the circumstances of the discovery of *Phyllonorycter platani* in Britain. The purpose of the present article is to give a full description of the imago and life history.

PHYLLONORYCTER PLATANI (Staudinger)

Lithocolletis platani Staudinger, 1870, *Trudy russk. ent. Obshch.* **7**: 277, tab. 3,. fig. 8.

Type locality: Italy; Lake Como.

Description of imago

Wingspan 8 - 10mm. Head with vertical tuft yellowish white mixed fuscous, frons shining white; antenna golden with obscure fuscous annulations. Thorax golden yellow with three lines, outer two white, median silver edged black. Forewing golden yellow; four costal strigulae, first silver edged black, very oblique and continued as a fine silver edging along costa to base of wing, second to fourth more vertical, white on costa but in disc silver, all inwardly edged black, third and fourth almost reaching termen; two dorsal strigulae, both silver edged black, first extending from wing base subdorsally to one-third, then obtusely angled and continued very obliquely to just beyond apex of first costal, second moderately oblique, extending almost to apex of second costal and occasionally merging with it to form a fascia; basal streak to one-third, silver edged black, broad and slightly sinuous; an apical black dot; fringe line strong, black, extending from fourth costal to tornus; cilia pale golden, tips slightly darkened at apex. Hindwing pale grey; cilia pale shining golden. Abdomen fuscous in male, whitish fuscous in female. In living specimens the apex of the forewing is flexed upwards as in *Leucoptera* Hübner.

The ground colour of the forewing, more yellow than in other British *Phyllonorycter,* and the shape of the first dorsal strigula readily distinguish *P. platani* from all other members of the genus.

Life history

Ovum. Laid on a leaf of plane, generally on the underside. The London plane is a form of *Platanus orientalis,* variously known as *Platanus* x *hispanica, P.* x *acerifolia* or *P. hybrida.*

Larva. Head pale yellowish brown, mouth-parts darker. Abdomen sordid white, gut dull green or reddish according to the colour of the food ingested (see below); legs concolorous with abdomen.

Mine. Generally underside but occasionally upperside, especially as a minority in leaves carrying several mines; twelve have been recorded in Britain and Staudinger found 54 in one leaf at the type locality (Stainton, 1869, p. 140). One of the largest of British *Phyllonorycter* mines, averaging 37.5 x. 11.3mm, the largest measured having been 69 x 22mm; the mine becomes narrower as internal spinning causes the lower epidermis to contract. Underside mines are normally between veins but those on the upperside may straddle a vein like that of *P. corylifoliella* (Hübner). The upper epidermis becomes mottled by the feeding and later, when all the parenchyma has been consumed, turns uniform dirty white. The frass is at first dispersed but later stacked in a heap in the centre of the mine. Larvae of the autumn generation feed on well into November. There is virtually no "green island" and the larvae are able to thrive on mesophyll that has turned brown after leaf-fall.

The larva appears to be less vulnerable than its congeners to mine damage. Even when the lower epidermis is split right across the centre, the larva seals off one half of the mine with silk and continues to feed therein. A number of mines have a small hole in the lower epidermis that does not appear to have been caused by physical damage.

Platanus is very seldom used as a foodplant by lepidopterous larvae and probably the nutrient value of the leaves is low. This may account for the big mine and the large quantity of mesophyll eaten in proportion to the size of the moth.

Prior to pupation the larva spins a flimsy cocoon attached to the upper epidermis near one end of the mine. The spinning causes further contraction and the position of the cocoon is often betrayed by the presence of a small bulge.

Pupa. Pale brown; setae long; dorsal spines of abdominal segments evenly distributed but larger anteriorly; cremaster with two pairs of slender processes, the inner pair straight, the outer pair hooked, the hooks turned outwards; the form is closest to that of *P. sylvella* (Haworth) (now *acerifoliella* (Zeller)), as shown in MBGBI 2, fig. 105 (p), but in *P. platani* the shafts are straighter and the hooks larger. On emergence the pupa leaves the cocoon and wriggles towards the end of the mine before eclosion. June-July; November-late April or May.

Imago. Bivoltine, late April-May; August. It is possible that the November larvae arise from a third generation in the autumn. Because of the distribution of its foodplant the moth will always be restricted to a suburban habitat. There does not seem to be any obvious place for it in the British list. Leraut (1980) places it immediately after *P. messaniella* (Zeller) and Schnack (1985) next to *P. acerifoliella,* a position possibly prompted by the form of the cremaster. Leraut's arrangement seems better and I suggest that it is adopted and *P. platani* be given the Log Book number 321a.

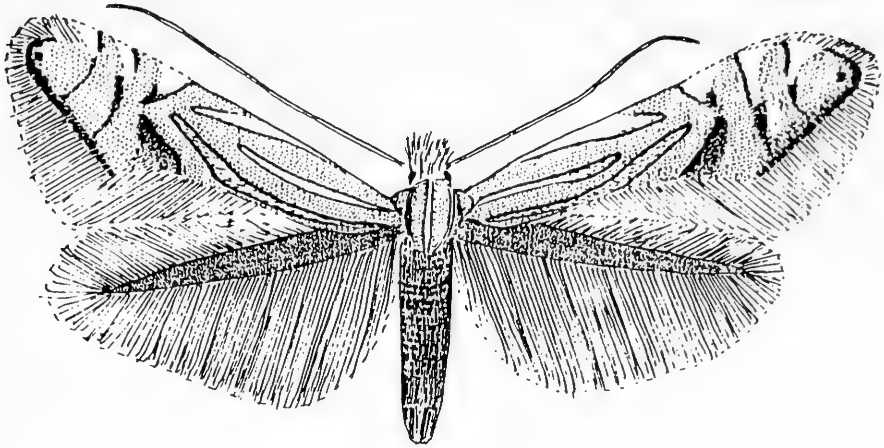

Fig. 1. *Phyllonorycter platani* (Staud.)

Fig. 2. Mines in *Platanus* sp.

Parasites. Two species, *Sympiesis sericeicornis* (Nees) and *S. gordius* (Walker) (Eulophidae) have so far been identified.

Distribution. At present known in Britain only from the West End of London and northern Surrey, where it is plentiful at Kew Gardens. Southern and Central Europe, but currently extending its range northwards and westwards.

Acknowledgements

I am indebted to Dr D. Nash for the drawing of the mine, to Dr M.R. Shaw for identifying the parasites, to Mr M.F.V. Corley for drawing the Stainton (1869) reference to my attention and to Canon D.J.L. Agassiz for certain statistics and the figure of the adult. He told me that he found the pale ground colour and the silvery hue of the strigulae difficult to represent clearly in a black and white drawing.

References

Emmet, A.M., 1991. *Phyllonorycter platani* (Staudinger, 1870) (Lepidoptera: Gracillariidae) new to Britain. *Entomologist's Rec. J. Var.* **103**: 1.

Leraut, P., 1980. Liste systématique et synonymique des Lépidoptères de France, Belgique et Corse. *Alexanor,* suppl. **1980**, 334pp.

Schnack, K., 1985. Katalog over de danske Sommerfugle. *Ent. Meddr.* **52**, hefte 2-3.

Stainton, H.T., 1869. *The Tineina of Southern Europe,* 370pp. London.

A note on the life history of *Blastobasis decolorella* (Woll.) (Lep.: Blastobasidae)

In October 1990 I was searching for larvae of *Cydia aurana* Fab. in seedheads of *Heracleum sphondylium* at Bickley, Kent. Almost every seedhead contained larvae but, all being of a pinkish colour, they were clearly not those of *aurana,* which is white. Many of the larvae had made neat, round holes in the stem below the seed heads and were resting inside the stems.

As the identity was uncertain, I split the larvae into two batches: some stems and seed heads were placed in a linen bag and overwintered in a shady place in the garden. The remainder were put in a flower pot containing some earth and leaf litter, and left outside for the winter.

The linen bag was brought indoors at the end of April. On opening the bag I found the larvae had spun cocoons in the linen folds, but these contained only dead larvae — possibly killed by some severe spring frosts. The flower pot was left undisturbed and the first moth — a male *Blastobasis decolorella* — appeared on 6th June 1991, with others on subsequent days.— D. O'Keeffe, 50 Hazelmere Road, Petts Wood, Kent.

OBSERVATIONS ON *DIOCTRIA COTHURNATA* MG. (DIPTERA: ASILIDAE) IN DORSET

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FIVE species of the robber fly genus *Dioctria* are known in Britain and a basic statement on the ecology and distribution can be made for four of them. The enigmatic species is *D. cothurnata* for which little can be said of the sparse but widespread records. Thanks to the discovery of this species at several localities in west-Dorset by Martin Drake in mid-July 1987 it has been possible to take a small step towards further understanding the ecology of this species.

My only previous encounter with *cothurnata* was along the Radnor/Montgomery border where a male was taken 2½m north-east of Pant-y-dwr on 26th July 1975. This rather unlikely spot at 300m was a sheltered glade with a stream (Rhydyclwydau Brook), flanked by immature conifer plantation. This perhaps speaks little for the natural habitat in Wales and my wide travels in that country have not revealed other sites for the species.

Dioctria cothurnata was found at Mapperton, Dorset, where Martin Drake had taken a series of rapid sweep samples at various places along the various spring fed streams, with alder lined banks and alder carr widespread. He also sampled a number of other valleys and found *cothurnata* at Stones Common (Lower Kingcombe) and West Milton. The initial indication was that the robber fly is associated with woodland margins in wet valley bottoms but there had not been time to define more specifically the circumstances of capture. I succeeded in finding *cothurnata* at all three sites, though only at West Milton did I see the insect at the same location as Martin Drake within a site.

Mapperton

My own visit to Mapperton on 21st June 1989 led to a small glade where a large sallow had fallen over within valley side alder seepage carr. Soon I saw a male hovering, with occasional forward movement, among tall lush leaves of *Ranunculus repens*. It was only visible fleetingly, being so heavily screened beneath the leaves. There was a small prey item being carried so the robber fly was netted with a deep sweeping stroke — the *Dioctria* was successfully caught but the prey item was unfortunately not in the net. Regrettably this was the only individual seen here with prey but the circumstances suggest that mate seeking is pursued in this very secretive fashion. This observation was made where the *Ranunculus* was at the edge of some *Ribes rubra* close to an *Alnus,* the whole in full sunlight at about 12.00 BST on a hot sunny day. The related flora was *Chrysoplenium oppositifolium* together with nearby patches of *Caltha palustris* and *Allium*

ursinum, growing on peat that may well have been a metre or more thick. If it had not been for the long drought of previous months this would have been a very wet situation, though at this time only very moist. To the uphill side there was a moist sandy bank with *Carex remota* and *Dryopteris dilatata* under alder and hazel, then a cattle grazed meadow.

About an hour was spent here searching and sweeping in the clearing, in dappled light and in denser shade under alders, without further encounter with *cothurnata.* Then, for less than a minute, two more males were seen on *Ranunculus* leaves and flying in ichneumon-like fashion at the edge of the same sunny clump of *Ribes.* Also a female was seen at rest low on a leaf in dappled light, its position screened by higher herbage. Eventually a male was swept in dappled light in a similar area of carr about 50 metres away.

Another location with *D. cothurnata* was found when a female was seen sitting on *Urtica dioica* leaves, fairly well hidden from view. Though apparently not disturbed by my presence, after a while it flew leisurely deeper into the nettle patch. A female was again seen about four metres away under similar circumstances and another then came out onto exposed leaves, before flying off hurriedly (almost certainly disturbed by my movement). This nettle patch contained *Galium aparine* and some *Equisetum telmateia.* It was situated in a sunny position on the valley floor adjacent to an *Alnus* lined stream, with an uphill narrow fringe of *Holcus lanatus* before grading into varied dry grassland.

West Milton

On 22nd June the morning was spent in West Milton Valley. At about 11 am BST a female *Dioctria rufipes* (Deg.) was seen perched on a leaf about 60cm above ground. This observation was at a sunny patch of brambles, *Rubus fruticosus* agg., on a dry bank just above seepage. The thought that a neat ecological difference between species was thereby portrayed was soon dashed when five metres further along the same bramble covered bank there was a female *D. cothurnata* in an almost identical situation. The latter female was carrying prey. It soon flew leisurely down to sit on a *Ranunculus repens* leaf where it was netted together with its prey item. (To my great disappointment this prey was subsequently lost but it seemed to be a small braconid.)

The location was a sun trap glade with alder seepage peat extending below and to either side. The bramble patch had some *Urtica dioica,* with an outer fringe below of *Holcus lanatus.* The *Ranunculus* was the dominant herb on wet seepage. The observations were made about five metres from the nearest alders.

Shortly after the encounter with the above female, a male was seen in about the same position on the brambles, though only 30cm above ground. It flew down to the *Ranunculus repens* leaves and after leisurely moving position over a total distance of about seven metres, within the sun, it rapidly flew off.

Stones Common

In the afternoon of 22nd June a visit was made to the Stones Common area of the Kingcombe nature reserve of the Dorset Wildlife Trust. *Dioctria cothurnata* was not seen at an alder lined stream across a field where Martin Drake had previously reported it. Away from the stream I was sweeping fairly casually at 3.30 pm when I noticed a female *D. cothurnata* just as the sweep net captured it. On confirming identification the insect was released so the subsequent erratic sightings may have all been of the same fly.

This situation was in a north-east facing hollow in the angle between two alder hedgerows. There were some small clumps of *Juncus effusus* among *Glyceria fluitans* and local *Juncus articulatus,* with areas of *Ranunculus repens* and *Holcus lanatus*. About half the vegetation was in the sun and all observations were made in this sector, about 3 - 5 metres from the nearest alders.

The female was swept from *Juncus effusus* about 4 - 5cm above ground and on another occasion one was at a similar height. For the most part they settled within 10cm of the ground, variously sitting on *Juncus* or *Ranunculus* leaves. The flight was leisurely or moderately fast, and on one occasion involved flying fairly quickly through a clump of *Juncus effusus* leaves about half way up as if there were no obstacles. If disturbed, departure was swift, usually impossible to trace beyond the first few yards. In all there were perhaps five encounters though only one insect was seen at any one time.

Discussion

It is confirmed that there is a strong association with woodland and woodland margin habitat on very wet valley peat mire. The only other British asilid that one might typically expect in such situations is *Dioctria rufipes* whose peak emergence is much earlier. Other robber flies (such as *Leptarthrus brevirostris* (Mg.) and *Machimus atricapillus* Fln. can be found in wet places but these can persist in entirely dry habitat and may be best interpreted as visitors.

These observations in west-Dorset show a particular association with *Ranunculus repens* and related plant communities on wet seepage peat in the proximity of *Alnus*. This habitat is widespread in Britain and is strongly represented in some districts. I have swept this sort of habitat in many situations whilst recording craneflies yet have not found *cothurnata* in such situations before. Martin Drake obtained his specimens by general sweeping without particular attention to robber flies. Either the area is particularly favourable for the species or his technique of sweeping is in some subtle fashion different from mine — it is not uncommon for different people to find very different faunas by sweeping. Our conclusion is that this area of Dorset has relatively good populations of the robber fly.

There is the possibility that weather conditions affect the location of the adults, giving a misleading impression of the likely breeding site. Though 1987 had a cool summer, Martin Drake's observations were made during a hot sunny period. My visit was in the dry sunny summer of 1989 so apart from a longer build up of drought in 1989, the two sets of observations were made under somewhat similar conditions. In hot dry weather insects might head for cool moist situations. However, it seems reasonable to infer that the habitat association is normal, though still saying nothing firm as regards indicating the situations where larvae develop. *Dioctria* lay eggs whilst in flight but they could choose rather different habitat for this purpose.

The prey is typical of *Dioctria,* which are specialists on parasitic Hymenoptera. In common with other members of the genus it is probable that other small insects are included in the adult diet. The behaviour of the species remains an enigma. On my first day's observations the species was maddeningly secretive and elusive, easily accounting for the rarity of records. On the next day, when the weather was not markedly different, the species was out in full view showing a far more visible life style. Even in the latter mode it may be easy to overlook but it ought to be intercepted and recorded with moderate success.

Hopefully these observations will provide a stimulus to finding out more about this species.

Acknowledgements

Thanks are passed to Martin Drake for allowing me to draw upon his original observations.

Eulamprotes phaeella Heckford & Langmaid (Lep.: Gelechiidae) in Kent

At Holly Hill near Snodland, Kent, on the night of 11th July 1990, I took an *Eulamprotes* species at m.v. light which did not match *E. atrella* which appeared at the same time. Later examination of the genitalia, with the help of Mr P. Jewess, indicated that the specimen was of the recently described species *Eulamprotes phaeella.*

This species was taken in Kent in 1937 by L.T. Ford at Bexley, although he had identified it as *Aproaerema anthylidella* (Heckford, *Ent. Gaz.* **42**: 188). This current specimen is certainly the most recent, and the most easterly record so far for Kent. No doubt, this species, if searched for, will be shown to be widespread in Kent. For a description of this species see Heckford, R.J. & Langmaid, J.R. (1988) *Ent. Gaz.* **39**: 1-11. *Phaeella* is illustrated in colour by Sokoloff, P.A. & Bradford, E.S. (1990) *Br. J. ent. nat. Hist.* **3**(1) 23-28.— D. O'Keeffe, 50 Hazelmere Road, Petts Wood, Kent BR5 1PD.

BARBERRY CARPET MOTH, *PAREULYPE BERBERATA* D. & S.: THE DISCOVERY OF A SECOND BREEDING COLONY IN BRITAIN AND OTHER RECENT RECORDS.

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THIS PAPER reports the discovery of three larvae of *P. berberata* at Westonbirt Arboretum in Gloucestershire on 12th September 1988 and a further three on a return visit on 30th June 1989, feeding not on the usual native barberry, *Berberis vulgaris,* but on a *Berberis* which the arboretum dendrologist, John White, has not been able to determine precisely, because it is probably a hybrid or cultivated variety. The best estimate is *B. turcomanica* possibly var. *integerrima*. The background to the discovery and the implications for the status and conservation of the moth in Britain are given below.

Background information

In 1969 a colony of *P. berberata* was discovered near Winchester, Hants in a locality in which a single individual was recorded in 1940 (Goater, 1974). During the 1970s the three bushes of *B. vulgaris* on which larvae were found were scorched by uncontrolled stubble burning (Skinner, 1984, 1987). The bushes subsequently recovered but the moth has not been seen there again in spite of a number of searches by concerned entomologists (B. Skinner pers. comm.). Since then only a single breeding colony of this moth has been known in Britain. This is the traditional site in Suffolk which consists of just 120m^3 of hedgerow barberry, *Berberis vulgaris,* the native foodplant of *P. berberata* (Waring, 1989). Formerly the moth was not so rare. In the nineteenth century *P. berberata* was widespread in England and Wales (Jenner-Fust, 1868). It reached at least as far north as Marr near Doncaster, Yorks (Porritt, 1883). The discovery that *B. vulgaris* was a secondary host for the wheat rust fungus *Puccinia graminis,* led to farmers grubbing out the plant from hedgerows and the loss of colonies of the moth (Barrett, 1902).

Recent records of *P. berberata*

In spite of this destruction of habitat, occasional adult specimens of *P. berberata* have been reported in recent decades from widely scattered localities.

Skinner (1984) notes single specimens from Blandford, Dorset on 23rd May 1926, Bourton-on-the-Water, Gloucestershire on 15th May 1949 and 25th July 1952, Westonbirt, Gloucestershire on 8th September 1962 (reported by Newton 1963) and several mostly worn examples near Ifold, West Sussex on 4th and 5th June 1969, the latter report also appearing in Pratt (1981). Recent records which have been collated subsequently include

a singleton from Slapton, Devon on 13th June 1959 (Richardson, 1960), two specimens, on 4th June and 19th August 1979, and a third on 31st May 1981, at Faringdon, Oxfordshire (M.F.V. Corley, pers. comm.), and further single specimens from Westonbirt, Gloucestershire on 25th August 1974 and 8th June 1980 (Rothamsted Insect Survey files) and in June 1980 (no day given) (Newton and Meredith 1984), a specimen from Crawley, Hampshire on 30th August 1984 (R.A. Bell, pers. comm.) and this year (1990) a single female from a second locality near Winchester, Hampshire from which site there are no previous records . There are also records which require investigation from Dyfed (1962) and Bedfordshire (1969-1971) on NCC files and examination of the local lists catalogued by Chalmers-Hunt (1989) may turn up additional records.

Previous searches for breeding colonies based on the above records

Location of the breeding colonies from which specimens like the above have come is not necessarily an easy matter and can be time consuming. Jack Newton (pers. comm.) described to me how he searched the Westonbirt area "a couple of years" after capturing the 1962 specimen reported in Newton (1963). The arboretum was "like a jungle in places" and he had difficulty in locating the barberry bushes. Consequently none was beaten and he has found no larvae in the intervening years nor knows of any through his work as county recorder for Gloucestershire. When Martin Corley (pers. comm.) went on 4th May 1988 to check the nearest *B. vulgaris* known to him at the site where he recorded his specimens in Oxfordshire in 1979 and 1981, he found that the *Berberis* had been removed during hedge tidying and ditch maintenance. In Sussex Pat Cordell was unable to locate any *B. vulgaris* in the vicinity of his captures and according to the "local Floras" the plant does not occur in this part of Sussex nor the adjacent area in Surrey (B. Skinner, pers. comm.).

In view of my discovery of *P. berberata* on a cultivated *Berberis* rather than *B. vulgaris* it may be that the Sussex specimens and others have come from colonies that are now feeding on exotic *Berberis* species which do not appear in the county Floras.

The search at Westonbirt

During 1988 and 1989, the Nature Conservancy Council moth conservation project (Waring, 1990a), provided the opportunity to investigate Westonbirt Arboretum. The site was visited four times in all. The first visit was made on 1st June 1988 by Paul Hatcher who was assisting with surveys for the moth in Oxfordshire, while I was working on the species in Suffolk.

Equipped with hand net and torch, he searched from dusk until 21.30 hours, mainly in the vicinity of two bushes of *B. vulgaris*. It was a cloudy night, drizzling, with no wind and other geometrid moths were seen, but no

Barberry Carpets. There was a blank result on the same night at the Suffolk colony.

On 4th June Rachel Thomas and I investigated Westonbirt Arboretum. We allowed a full day to walk around the site, and we needed it. There are 116 *Berberis* plants, of a variety of species, in the numerical listing for the site (FC computer file, 1988 version) and we set out to look at them all so that I could decide the places where we might be most likely to find the moth breeding if it was present. In this exercise we were greatly assisted by the Forestry Commission staff at Westonbirt who provided us with maps locating all the plants. To round off the day we set up a Robinson trap by some old established *Berberis* which had large fleshy leaves like *B. vulgaris* but which at that time had not been identified. We operated a Heath trap by other *Berberis* nearby and patrolled these and the area around the permanent Rothamsted trap until 23.00 hours. It was a cloudy calm night with a dusk temperature of 12°C which had dropped to 8°C by the time we packed up. We noted five other species of geometrid moths on the wing but no *P. berberata*. Possibly the flight period of *P. berberata* had ended by this time.

Owing to other survey commitments the next visit was on 12th September 1988, four days after finding second generation larvae in Suffolk. Paul Hatcher and I started beating at exactly the place where I had operated the Robinson trap in the arboretum on 4th June and immediately we got three larvae from these undetermined *Berberis*. All three larvae were in the final instar, just as in Suffolk. Two were returned to the bushes and one was retained to be photographed and reared to adult for absolute confirmation of this record. It began to spin its cocoon on 18th September 1988. We left these bushes well alone as soon as we had established that larvae were present, and moved on to try elsewhere in the arboretum. In spite of beating a total of $90m^3$ of *Berberis* at several other locations which I had considered promising within the arboretum, we found no more larvae. Two possible explanations for this result are that the larvae are very localised within the arboretum or that we just caught the last tail-enders before pupation. For comparison note that on the previous day, 11th September 1988, 95% of a batch of 70 captive larvae reared at outdoor temperatures were fully fed and some had begun to spin cocoons (R. Eley, pers. comm.) and most of another batch kept in a garden shed had pupated (G. Haggett, pers. comm.).

On 30th June 1989 I returned to Westonbirt in the company of Ron Louch. We were successful in finding three part grown larvae almost immediately when beating the same bushes that had produced larvae the previous September, but we found no more larvae on any of the bushes elsewhere in the arboretum. All three larvae were returned to the bushes from which they came and we did not disturb these again. *Berberis* species were beaten in all parts of the arboretum and we covered as much as we could reach from the ground. There are some very large bushes — one is

over 5m tall — and inevitably some *Berberis* foliage could not be beaten, but at this stage the moth must be considered as having a very local distribution within the arboretum and the individual bushes on which the larvae were found must be conserved even though there are similar bushes elsewhere on the site.

The discovery at Westonbirt is important for several reasons. It is only the second colony of the Barberry Carpet known to exist in Britain at present. It is far removed from the Suffolk colony and gives hope that the moth could still survive elsewhere within the large area of southern and midland England that it occupied in the nineteenth century. It is the first time that the moth has been recorded on a *Berberis* hybrid or cultivar rather than on the native *Berberis vulgaris* and this opens up the possibility that other colonies could exist on introduced *Berberis*. The host plant at Westonbirt is similar to *B. vulgaris* in having fairly large fleshy leaves and a relatively thin cuticle in comparison with many *Berberis*. This type of foliage is probably more palatable to the early instars. From captive rearing it has already been established that the larvae will develop successfully on some of the exotic *Berberis* species such as *B. ottawensis, B. thunbergii* and *B. wilsoniae*. It would be useful to rear the same number of larvae on several of the more common *Berberis* species and compare their growth rates. What is clear now from the discovery at Westonbirt is that the female will lay in the wild on at least one of the *Berberis* species or hybrids other than pure *B. vulgaris*.

In these circumstances there is a final point which may help explain why the Barbery Carpet survives at Westonbirt but appears to be absent elsewhere and that is the continuity of the habitat. The arboretum records show that *Berberis vulgaris* has been represented on the site since well before 1927. In that year Jackson (1927) reports "There are exceptionally fine plants of this well-known shrub at Westonbirt, one in Silkwood at the west end of the Broad Drive is no less than 18 ft high, 22 ft through and 40 ft in circumference." No planting date is given but the specimen must have been there for several decades to attain such a size. This would take us back to some time in the previous century, perhaps before the large-scale eradication of barberry and certainly when the moth was a commoner insect in the countryside. There are no earlier written records confirming the presence of *Berberis vulgaris* on the site. The curator Jonah Neale left a diary for 1858 which mentions some of the plants in the arboretum but which is known not to be comprehensive. *Berberis vulgaris* is not mentioned. The arboretum was started in an open field with adjacent woodland by Robert Holford in 1829. The present arboretum dendrologist (John White, pers. comm.) informs me that it was Holford's aim to represent all the native British trees and shrubs in his collection. As *Berberis vulgaris* was then not an uncommon species and well-known, with culinary and herbal uses (Bean, 1970), it is very likely that Holford would

have obtained it. So, while the Barberry Carpet has been recorded intermittently at Westonbirt since 1962, it may well have been on the site for very much longer. It is fortunate in that its habitat requirements have continued to be met on a site that has undoubtedly changed a great deal even since 1962. The Forestry Commission now own the site and I alerted them and our regional staff to the presence of the moth as soon as we discovered it. I have drawn attention to the fact that the use of insecticidal sprays in the vicinity of the *Berberis* may jeopardise the moth and that the removal of leaf litter from under the bushes may remove pupation sites for it. Captive rearing experiments suggest the larvae prefer to pupate at the soil surface just below leaf litter but raking away the dead leaves may expose the pupae to predators.

In view of the discoveries reported above it would be well worth investigating large stands of long-established *Berberis* in other parts of Britain. *B. vulgaris* is widespread, although considered to be introduced in many places (Perring and Walters, 1990). Even where the plant is introduced, it is conceivable that eggs and larvae may have accompanied the bushes if these were transplanted in leaf many years ago. The Juniper Carpet, *Thera juniperata,* has been widely introduced in this way in recent years (Waring, 1990b).

On the question of beating unexplored *Berberis* sites.

In view of the apparent rarity of *P. berberata* and continuing threats to the traditional breeding site (Waring, 1989), the species was given the full protection of the Wildlife and Countryside Act 1981, Schedule 5, in 1981. This makes it illegal to collect or disturb the species in any of its stages without a licence issued by English Nature or the Countryside Commission for Wales or to trade in it without a licence issued by the Department of the Environment (DoE). There is a maximum fine of £2,000 per specimen for any deliberate infringement. Consequently deliberately setting a trap or beating a barberry bush for the species, such as at a known breeding site, is illegal. However, it is unlikely that any court would consider it an offence if an entomologist accidentally caught a specimen at a light trap away from the known breeding sites. In this event statutory bodies would not seek a prosecution and would be most grateful for details of the record (Species Adviser, M.A. Palmer, JNCC, pers. comm.).

Deliberate beating of *Berberis* in search of the larvae needs to be covered by a licence. This can be arranged for *bona fide* surveys and, in view of the great value of these in clarifying the true status of *P. berberata* in Britain, applications will be considered favourably. I am happy to be the initial JNCC contact and would welcome and assist any proposals for survey work. JNCC may also be able to assist in obtaining permission from owners for surveys on private land.

Acknowledgements

I thank Hugh Angus, the curator, and his staff from the Forestry Commission for permission to work in Westonbirt Arboretum, and for their concern to conserve and protect the Barberry Carpet moth there. The Nature Conservancy Council supported this project and issued me with the necessary licence to work on this moth, in compliance with the Wildlife and Countryside Act 1981, Schedule 5. I would like to thank Adrian Riley of the Rothamsted Insect Survey, Reg Bell, Martin Corley, Jack Newton, Bernard Skinner, Dougie Sterling and John White for information; Paul Hatcher, Ron Louch and Rachel Thomas for assistance with the fieldwork and Rafe Eley and Gerry Haggett for assisting with captive rearing experiments.

References

Barrett, C.G., 1902. *The Lepidoptera of the British Isles.* Vol. 8: 138-140. Reeve & Co. London.

Bean, W.J., 1970 (8th edn.). *Trees and shrubs, hardy in the British Isles.* Vol. I. John Murray.

Chalmers-Hunt, J.M., 1989. *Local lists of Lepidoptera.* Hedera Press. Uffington, Oxon.

Goater, B., 1974. *The butterflies and moths of Hampshire and the Isle of Wight.* Classey. Faringdon.

Jackson, A.B., 1927. *Catalogue of the trees and shrubs in the collection of the late Lieut-Col. Sir George Lindsay Holford.* Oxford University Press. London.

Jenner-Fust, H., 1868. On the distribution of Lepidoptera in Great Britain and Ireland. *Transactions of the Entomological Society* (Series Three). London. **4**: 417-518.

Newton, J., 1963. Notable Lepidoptera in Gloucestershire in 1961-62. *Entomologist's Rec. J. Var.* **75**: 46-47.

— , and Meredith, G.H.J., 1984. *The macrolepidoptera of Gloucestershire.* Cotteswold Naturalists Field Club, Gloucester.

Perring, F.H. and Walters, S.M., 1990. *Atlas of the British Flora.* Botanical Society of the British Isles. Cambridge.

Porritt, G.T., 1883. *List of Yorkshire Lepidoptera.* Yorkshire Naturalists Union, Leeds.

Pratt, C., 1981. *A history of the butterflies and moths of Sussex.* Borough of Brighton, Booth Museum of Natural History. Sussex.

Richardson, A., 1960. Twelfth report of the Entomological Section. *Transactions of the Devonshire Association,* **92**: 339.

Skinner, B., 1984. *Colour identification guide to moths of the British Isles.* Viking. Harmondsworth, Middx.

— , 1987. *In* Shirt, D. (ed.) 1987. *British Red Data Books,* 2. *Insects.* Nature Conservancy Council, Peterborough.

Sterling, D.H., 1991. A possible new colony of *Pareulype berberata* D.& S. (Lepidoptera: Geometridae), the Barberry Carpet in North Hampshire, vice-county 12. *Br. J. ent. nat. Hist.* **4**: 118.

Waring, P., 1989. Conserving the Barberry Carpet moth in Suffolk. *Transactions of the Suffolk Naturalists' Society,* **25**: 37-41.

— , 1990a. Conserving Britain's rarest moths. *British Wildlife* **1**(5): 266-284.

— , 1990b. Moth report. *British Wildlife* **1**(3): 1[illegible]9-170.

BATRISODES ADNEXUS (HAMPE) (*B. BUQUETI* AUCTT. BRIT.) AND *B. DELAPORTI* (AUBÉ) (COL.: PSELAPHIDAE) IN BRITAIN

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THERE ARE three British species of *Batrisodes* Reitter, adequately separated by Joy (1932) and by Pearce (1957) (once it is realised that his "slender" and "robust" with reference to the antennae in couplet 1 should be transposed (Allen, 1960), and that it is *B. delaporti* that may be recognised by its robust antennae with segments 5-7 strongly transverse). All of the British species are myrmecophilous, *B. venustus* least strictly so and occasionally found under bark or in rotten wood. Records of *B. venustus* are widely distributed throughout England from South Hampshire to as far north as Cumberland, though the species is very local and generally uncommon. Neither *B. adnexus* nor *B. delaporti* have, until now, been reported outside the Windsor area. Both species are closely associated with the ant *Lasius brunneus* (Latreille).

B. adnexus has been found on very few occasions since it was first taken with *L. brunneus* in Windsor Great Park, by H.StJ.K. Donisthorpe on 25th June 1924 (Donisthorpe, 1924). Bedwell (1926) took the second Windsor specimen on 11th July 1925, and on 30th June 1926 Donisthorpe found the third, in Windsor Forest, again associated with a nest of *L. brunneus* (Donisthorpe, 1927). A.A. Allen took the fourth British specimen, a female, in August 1939 "in a rotten oak stump which held a small colony of the ant *Acanthomyops (Donisthorpea) niger* L. in Windsor Forest." (Allen, 1946). Since that time I know of only one additional record, other than my own. My friend Prof. J.A. Owen found a single female in wood mould taken from the centre of a fallen ancient oak in Windsor Great Park on 12th August 1986. The tree held a large nest of *L. brunneus*.

On a visit to an area of Epping Forest near Chingford, South Essex, on 15th March, 1987, I was fortunate to find an old oak, *Quercus robur* L. with a large rot hole allowing easy access to the heartwood, in which there was a thriving colony of *L. brunneus*. I sieved a sample of the nest through a standard garden sieve in the hope of finding myrmecophilous Coleoptera but found nothing. Hoping for more success with a Winkler extractor, I took the sievings home. My single extractor was in use, so I put the sample in a rearing tub instead. This consisted of an inner bucket (filled to the brim with the sample) inside a slightly larger white plastic tub with a close-fitting lid. In August, the same year, *Batrisodes* began to emerge and on dropping over the edge of the inner bucket were easily seen against the white surface of the tub. Once the first few specimens had been found in this way, the contents of the bucket were carefully examined and in total nine *Batrisodes* were collected, including one which was entirely yellow and presumably teneral. To my surprise, they proved to be *B. adnexus*. Unfortunately, all

were females. Although the sample was kept a further 18 months no other beetles emerged. Single specimens have been given to Mr A.A. Allen, Dr C. Besuchet, Dr P.S. Hyman and Prof. J.A. Owen. Mr Allen and Prof. Owen have confirmed that the Epping specimens are conspecific with their Windsor *B. adnexus*.

In recent years there have been different opinions as to the name that should be applied to our species. Dr C. Besuchet was first to question the occurrence of the true *B. adnexus* in Britain (Pearce, 1974) but the absence of sufficient material for study prevented Pearce from deciding whether the British species was *B. adnexus* or *B. buqueti* (Aubé), a closely related species not uncommon in France. Besuchet (1974) again cast doubt on the identity of the few British specimens, a doubt reflected by Pope (1977) who listed the British species as "*adnexus* auct. Brit.? (Hampe, 1863)". Hammond (1987) adopted the name *B. buqueti* for our species. Although on the basis of European distribution it was reasonable for Besuchet to question the identity of British specimens, there has not yet been any good reason for calling the British species *B. buqueti*. The problem is that to date all of the British specimens have apparently been females which are considerably more difficult to identify with certainty than are males. However, a significant character, evident in all British specimens, appears to be the small but distinct pointed tubercle at the elytral shoulders which is not found in female *B. buqueti* (Besuchet, 1988). Besuchet has identified one of the Epping specimens as *B. adnexus,* but with reservations, "Il faudrait au moins un mâle pour confirmer définitivement *adnexus* pour la Grande-Bretagne." (*in lit.)*.

In conclusion, there is no firm evidence to support the suggestion that the species known as *B. adnexus* in Britain is really *B. buqueti,* and no evidence at all that both species occur here. However, female *B. adnexus* are extremely difficult to determine with absolute certainty and a male specimen has yet to be recognised in Britain. It is possible that our species is parthenogenetic as probably is the closely related and recently described *B. unisexualis* Besuchet on the continent (Besuchet, 1988).

B. delaporti is a much less uncommon species in the Windsor Forest area and probably occurs in the majority of well established *L. brunneus* nests, as it was said to by Donisthorpe (1939). These are most frequently found in the dead heartwood of ancient living oaks and must take many years to excavate. Working such nests for Coleoptera can be seriously damaging and it is perhaps fortunate that many are so inaccessible.

According to Hammond (1987) *B. delaporti* is only known from the Windsor Forest area including nearby Silwood Park, where R.C. Welch collected five specimens in 1964. In the Claude Morley Collection at Ipswich Museum are a male and female *B. delaporti* labelled in Morley's hand, "*Batrisodes delaportei* NF. 30vi26 with *Lasius brunneus* (Don)." "NF" is Morley's usual abbreviation for "New Forest". Although it is vaguely possible that the specimens did come from the New Forest, I

suspect that they have been mis-labelled. Donisthorpe discovered *B. delaporti* in Windsor Forest in 1924 (Donisthorpe, 1924) and over the few years following found over 100 specimens (Donisthorpe, 1927); more than enough "duplicates" to distribute amongst friends and colleagues. From Morley's collection it is evident that Donisthorpe used to send him "duplicates" of rarities and species new to the British list. From Morley's entomological diaries (also at Ipswich Museum) it seems that Morley was in Suffolk, not the New Forest, on 30th June 1926. However, Donisthorpe was collecting in Windsor Forest on that day, the very same day he found his second example of *B. adnexus*! Finally, according to Barrett (1979), *L. brunneus* is not known to occur in the New Forest. It is worth drawing attention to these specimens in case they are noticed in the future and the record accepted without question.

Acknowledgements

I thank Dr C. Besuchet for confirming the identity of one of the Epping *B. adnexus*. I am grateful to Prof. J.A. Owen and Mr A.A. Allen for helpful discussion and for comparing Epping specimens with examples of *B. adnexus* they have taken in Windsor Forest. Prof. Owen has been most generous in allowing me to include reference to his previously unpublished capture of *B. adnexus*.

References

Allen, A.A., 1946. A third British specimen of *Batrisodes adnexus* Hampe (Col.: Pselaphidae). *Entomologist's mon. Mag.,* **82**: 96.

— , 1960. *Batrisodes* spp. (Col.: Pselaphidae): a correction. *Entomologist's mon. Mag.,* **96**: 102.

Barrett, K.E.J. (ed.), 1979. *Provisional atlas of the insects of the British Isles*. Part **5**. *Hymenoptera: Formicidae*. Huntingdon: Institute of Terrestrial Ecology.

Bedwell, E.C., 1926. *Batrisodes adnexus* Hampe at Windsor. *Entomologist's mon. Mag.,* **62**: 241.

Besuchet, C., 1974. Familie: Pselaphidae, pp.305-62. In: Freude, H., Harde, K.W. and Lohse, G.A., 1974. *Die Käfer Mitteleuropas,* vol. **5**. Krefeld: Goecke & Evers.

Besuchet, C., 1988. Description de deux *Batrisodes* paléarctiques nouveaux (Coleoptera: Pselaphidae). *Revue suisse Zool.,* **95**: 433-437.

Donisthorpe, H.StJ.K., 1924. *Batrisodes delaportei,* Aubé, and *B. adnexus,* Hampe — two additions to the British list of Coleoptera. *Entomologist's Rec. J. Var.,* **36**: 117.

— , 1927. *The guests of British ants their habits and life-histories*. London: G. Routledge and Sons.

— , 1939. *A preliminary list of the Coleoptera of Windsor Forest*. London: Nathaniel Lloyd.

Hammond, P.M., 1987. *Batrisodes buqueti* and *B. delaporti,* pp.172-3. In: Shirt, D.B., 1987. *British red data books:* **2**. *Insects*. Peterborough: Nature Conservancy Council.

Joy, N.H., 1932. *A practical handbook of British beetles*. 2 vols. London: H.F. & G. Witherby.

Pearce, E.J., 1957. Coleoptera (Pselaphidae). *Handbooks for the identification of British insects,* **4**(9).

— , 1974. A revised annotated list of the British Pselaphidae (Coleoptera). *Entomologist's mon. Mag.*, **110**: 13-26.
Pope, R.D., 1977. Kloet and Hincks. A check list of British insects. Coleoptera and Strepsiptera. 2nd ed. *Handbooks for the identification of British insects,* **11**(3).

Cyphostethus tristriatus (F.) (Hem.: Acanthosomatidae) in S.E. London, and its occurrence on *Thuja orientalis* L.

In a note recording this shieldbug from East Surrey (1984, *Ent. Rec.* **96**: 187) I hazarded a guess that it might before very long turn up in my more suburban district. This "prophecy" has now been fulfilled: on 12th May 1991, I found it to be not at all uncommon in the warm afternoon sunshine on a short boundary-hedge between my own and my neighbour's garden. This consists of young trees of Lawson Cypress (*Chamaecyparis lawsoniana*), none exceeding head height. The bugs favour one of them in particular, with large dense masses of purplish-glaucous young cones weighing down the foliage; one appeared to have its rostrum plunged right up to the base into such a cone. I have just (12th June) taken another look at this tree, and, in bright sunshine, counted a dozen of these colourful insects, including several pairs, in about as many seconds — though, strangely, none were apparent on any of the others. They are sluggish and seem to remain motionless for long periods, often half-hidden, yet conspicuous enough from their colouring.

On 12th May I detected a specimen on one of two smallish trees, also cone-bearing, of Chinese Thuja (*Thuja orientalis*) in a local park, and another on the same tree on 2nd June. (Mr Bernard Verdcourt, of the Royal Botanic Gardens, Kew, kindly identified a sample.) It seemed possible, at least up to the second date, that the *Cyphostethus* might have strayed on to this tree from nearby Lawson cypresses; but against that is the occurrence of two specimens, and (still more perhaps) my inability up to now to find the bug on any of the last-named — which is curious. Indeed, I have kept a sharp look-out for it on this and other related potential hosts elsewhere in the district, but without result up to now; these include Western Red Cedar (*Thuja plicata*), Monterey Cypress (*Cupressus macrocarpa*) — not adequately searched — and Savin (*Juniperus sabina*). I have seldom seen berries on the latter, which may be why it seems hitherto not to harbour *C. tristiatus* notwithstanding that the bug's wild host in Britain is *J. communis*.

Though doubtless now well established in the London area, my experience suggests that the species may be very local, or perhaps situation may be important. Mr Verdcourt informs me (in litt.) that he does not know of it from Kew Gardens; he has however, a record from "cypress" in a garden at Richmond Hill (1.vii.87). A number of bugs were found, and also their blue-green eggs on the young cones.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

INTERESTING LEPIDOPTERA RECORDS FROM NORTH-EAST FIFE

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THE FOLLOWING noteworthy Lepidoptera were taken in North-east Fife during 1988 and 1989. They originate from the two neighbouring localities of Morton Lochs National Nature Reserve (OS grid ref: NO4626) and Earlshall Muir SSSI (OS grid refs: NO4822 and NO4922), both v.c. 85. Several of the species have also been taken at the nearby Tentsmuir National Nature Reserve, and also, further north on the east coast, at St Cyrus National Nature Reserve in Kincardineshire.

Coleophora lixella Zeller, 1849. A single imago of this species was taken on 6.viii.1988 flying in afternoon sunshine over dry grassland adjoining the coastal sandhills at Earlshall Muir (NO4922). Its identification was confirmed by examination of the genitalia. This species has a coastal distribution in Scotland, having previously been recorded in Fife from Tentsmuir National Nature Reserve (Pelham-Clinton, 1970) and Pettycur (Bland, 1986), as well as from Kincardineshire (v.c. 91) (Hulme, Palmer and Young, 1978), Berwickshire (v.c. 81) (K.P. Bland, unpublished) and Skye (v.c. 104) (Agassiz, 1984). The single inland locality for this species at Straloch, Perthshire (v.c. 89) (R.P. Knill-Jones and K.P. Bland, unpublished) is rather curious, and may indicate a wider distribution than currently known.

Eulamprotes wilkella (Linnaeus, 1758). Several imagines of this species were taken in a battery-powered light trap among the sand dunes at Earlshall Muir (NO4922) on the nights of 15.vi.1988 and 6.viii.1988, and another was taken similarly in an area of dry grassland at Morton Lochs on the night of 24.vi.1989. The August record would appear to confirm the bivoltinism of this species in Scotland. There are three old (pre-1930) Scottish records, two from East Lothian (v.c. 82) and one from Midlothian (v.c. 83). More recently, it has been recorded in Fife from Tentsmuir National Nature Reserve (Pelham-Clinton, 1970), and in Kincardineshire (v.c. 91) from St Cyrus National Nature Reserve (v.c. 91) (Hulme, Palmer and Young, 1978).

Phalonidia manniana (Fischer von Rosslerstamm, 1839). Several imagines of this species were taken on 7.vi.1989 flying in the afternoon sunshine amongst a variety of wetland plants at Morton Lochs. Their identification was confirmed by examination of the genitalia. A further visit to the same locality (9.i.1990) produced several hibernating larvae in the stems of *Mentha aquatica* L. There appear to be no previous records of this species from Scotland.

Cydia internana (Guenee, 1845). A single worn imago of this species was taken flying in morning sunshine at Earlshall Muir (NO4822) on 27.v.1989. It was flying around bushes of *Ulex europaeus* L. at the edge of an area of birch woodland in the company of large numbers of *C. succedana* (Denis and Schiffermuller, 1775). The identification was confirmed by examination of the genitalia. There are a number of old (pre 1930) Scottish records of this species — Roxburghshire (v.c. 80), Midlothian (v.c. 83), Dumbartonshire (v.c. 99), Wester Ross (v.c. 105) and Easter Ross (v.c. 106), but the only recent Scottish records are from Renfrewshire (v.c. 76) (Christie, 1985), Kincardineshire (v.c. 91) (Young, Palmer and Hulme, 1981) and South Aberdeenshire (v.c. 92) (Palmer and Young, 1984).

Chilo phragmitella (Hübner, 1805). A single imago of this species was taken in a battery-powered light trap operated adjacent to reed beds at Morton Lochs on the night of 4.viii.1989. There are only two previous Scottish records, from the Tay Estuary, near Inchture, Perthshire (v.c. 88) (Pelham-Clinton, 1959) and from Adderstonelee Moss, Roxburghshire (v.c. 83) (Bland, 1983). The two occurrences referred to by Goater (1986) as Mid-Perthshire and the Tay Estuary both refer to the Inchture record.

Agriphila geniculea (Haworth, 1811). Single imagines of this species were taken flying in sunshine over the coastal sandhills at Earlshall Muir (NO4922) on 6.viii.1988 and 17.viii.1988. Another was taken in the same locality in a battery-powered light trap on 6.viii.1989. There are two old (pre 1900) Scottish records, one from the Isle of May (v.c. 85) and one from East Lothian (v.c.82). Recent Scottish records are all from the Inner Hebrides, from the islands of Canna, Sanday, Rhum, Coll and Muck (v.c. 103 and 104) (Harper and Young, 1981, Wormell, 1983, Bland, Christie and Wormell, 1987 and Dobson, 1990).

Anerastia lotella (Hübner, 1810-13). A single imago of this species was taken flying at dusk over the sand dunes at Earlshall Muir (NO4922) on 15.vi.1988. There are a number of old (pre 1902) Scottish records, one from Wigtownshire (v.c. 74), several from Ayrshire (v.c. 75) and two from Morayshire (v.c. 95). More recently it has been taken in Fife at Tentsmuir National Nature Reserve (Pelham-Clinton, 1970) and in Kincardineshire (v.c. 91) at St Cyrus National Nature Reserve (Palmer, 1975).

Mesoleuca albicillata (Linnaeus, 1758) (Beautiful Carpet). A single imago of this magnificent species was taken at a battery-powered light trap in an area of alder and willow carr at Morton Lochs on 4.viii.1989. Although widespread further south and west, this appears to be the first record from East Central Scotland.

Noctua orbona (Hufnagel, 1766) (Lunar Yellow Underwing). A single imago of this species was taken at a battery-powered light trap in a marshy area close to the coastal sandhills at Earlshall Muir (NO4922) on

17.viii.1988. Until the middle of the century, this species seems to have been widespread in Scotland, with many published records. However, since 1960, the only occurrences are from Findhorn, Morayshire (v.c. 95) (Harman, 1967 and 1971), Denholm, Roxburghshire (v.c. 80) (Buckham, 1974), Ordie, Aberdeenshire (v.c. 92) (Palmer, 1974) and Tentsmuir National Nature Reserve, Fife (v.c. 85) (Pelham-Clinton, 1970).

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I am very grateful to Dr K.P. Bland for help with the identification of many of the species discussed here and for making available unpublished records, and to Dr M.R. Shaw of the Royal Scottish Museum for allowing access to the Scottish Insect Records Index. I am also grateful to Mrs R. Charles and Mr P. Kinnear of the Nature Conservancy Council for arranging access to the sites.

References

Agassiz, D.J.L., 1984. Microlepidoptera — a review of the year 1983. *Entomologist's Rec. J. Var.,* **96**: 245-258.

Bland, K.P., 1983. Notes on Scottish Microlepidoptera, 1982. *Entomologist's Rec. J. Var.,* **95**: 183-184.

— , 1986. Some records of Scottish Microlepidoptera. *Entomologist's Rec. J. Var.* **98**: 25-28.

— , Christie, I.C. and Wormell, P., 1987. The Lepidoptera of the Isle of Coll, Inner Hebrides. *Glasgow Naturalist* **21**: 309-330.

Buckham, A.G., 1974. Records of Macrolepidoptera in Roxburghshire and Selkirkshire. *History of the Berwickshire Naturalists' Club* 1973: 210-212.

Christie, I.C., 1985. Lepidoptera in the West of Scotland. *Glasgow Naturalist* **21**: 93-96.

Dobson, R.M., 1990. The Natural History of the Muck Islands, North Ebudes, 6, Moths and Butterflies. *Glasgow Naturalist* **21**: 585-597.

Goater, B., 1986. *British Pyralid Moths — a Guide to their Identification.* 22-23.

Harman, T.W., 1967. Season '66. *Entomologist's Rec. J. Var.,* **79**: 129-135.

— , 1971. The End of a Decade. *Entomologist's Rec. J. Var.,* **83**: 171-179.

Harper, M.W. and Young, M.R., 1981. Additions to the Lepidopterous Fauna of the Isles of Canna and Sanday, Inner Hebrides. *Entomologist's Rec. J. Var.,* **93**: 150-153.

Hulme, P.D., Palmer, R.M. and Young, M.R., 1978. Lepidoptera of Aberdeenshire and Kircardineshire. *Entomologist's Rec. J. Var.,* **90**: 237-241.

Palmer, R.M., 1974. Lepidoptera of Aberdeenshire and Kincardineshire. *Ibid.* **86**: 33-44.

— , 1975. Lepidoptera of Aberdeenshire and Kincardineshire. *Ibid.* **87**: 180-188.

— , and Young, M.R., 1984. Lepidoptera of Aberdeenshire and Kincardineshire. *Ibid.* **96**: 162-164.

Pelham-Clinton, E.C., 1959. Microlepidoptera new to Scotland. *Entomologist's Rec. J. Var.,* **71**: 68-72.

— , 1970. Lepidoptera collected in Tentsmuir NNR, 1970. NCC unpublished report.

Wormell, P., 1983. Lepidoptera in the Inner Hebrides. *Proceedings of the Royal Society of Edinburgh.* **83B**: 531-546.

Young, M.R., Palmer, R.M. and Hulme, P.D., 1981. Lepidoptera of Aberdeenshire and Kincardineshire. *Entomologist's Rec. J. Var.,* **93**: 116-119.

Early Stag Beetles (*Lucanus cervus* L.) in Colchester

The early emergence of Stag Beetles in South London during 1990 (Morris, 1991 *Ent. Rec.* **103**: 106) was also observed in the species' other British stronghold in the Colchester area of north-east Essex. Males were observed around the Castle Park, Colchester during the first two weeks of May 1990 several weeks earlier than is usual. The Colchester Museum Biological Records Centre holds two other early stag beetle records, both for 1974 — Lexden, 15th May and Stratford St Mary, April. A survey undertaken in the Colchester area in the 1960s (Clark, 1964, *Essex Nat.* **31**: 167-172) found that the peak date for records of males was 3rd July and for females 11th July.— JERRY BOWDREY, Colchester Museums, 14 Ryegate Road, Colchester, Essex CO1 1YG.

***Thereva plebeia* (L.) (Dipt.: Therevidae): a recent find in E. Kent.**

On 21st May 1991, while collecting near Graveney on the shore of the Swale between Faversham and Seasalter, with my friends Mr S.A. Williams and Prof. J.A. Owen, I found a dipterous pupa (obviously Therevid) at roots of herbage in dry, slightly sandy soil alongside a breakwater. On 7th June it was seen to have produced a male imago, which had probably emerged a day or so earlier. It closely resembled the common *Thereva nobilitata* (F.), which I had expected it to be, but careful examination revealed important differences and it was finally identified from Oldroyd, 1969, *Handbk Ident. Br. Insects,* **9**(4a): 99, 102, as *T. plebeia.*

The really decisive structural feature visible externally is the hooked process of the male terminalia in lateral view (fig. 235, p.99), more or less hidden among the long hairs but evident when they are moved a little aside. This is far easier to see without dissection than the sole (rather obscure) character given in the key (p. 102) for the male of *plebeia.* Comparative differences from *nobilitata* in that sex, shown by my specimen, are the yellower occipital hairs and the thicker, rather longer and much more golden-yellow hair of the basal abdominal segments, especially at the sides.

Thereva plebeia was formerly not rare in the south-east and midlands, but its status is now upgraded to "notable" (Falk, 1991, A review of the scarce and threatened flies of Great Britain, **1**: 110)* It is stated there that "only a handful of modern sites have so far been confirmed"; and that it was recently reared from a larva found by Prof. Owen in the soil of an allotment at Epsom, Surrey. The habitat of my specimen is, perhaps, scarcely typical.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

*I am greatly obliged to Mr Falk for a copy of this most informative and useful work, published by the Nature Conservancy Council as No. 39 of the series Research and Survey in Nature Conservation.

NATIONALLY UNCOMMON GROUND BEETLES (COL.: CARABIDAE) FROM WELSH WETLANDS

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THE WELSH Peatland Invertebrate Survey (WPIS), a Nature Conservancy Council survey, studied the invertebrate fauna of Welsh peatlands from 1987 - 1989. The aims of the survey were to record the distribution of invertebrate species in Welsh peatlands and to study the effects of site management on the invertebrate communities present.

The sampling programme used pitfall and water traps, and litter searches and, in each of the three years of the survey, a different area of Wales was studied. The distribution of study sites is shown in Fig. 1. The full background and methodology are laid out in Holmes et al. (1991).

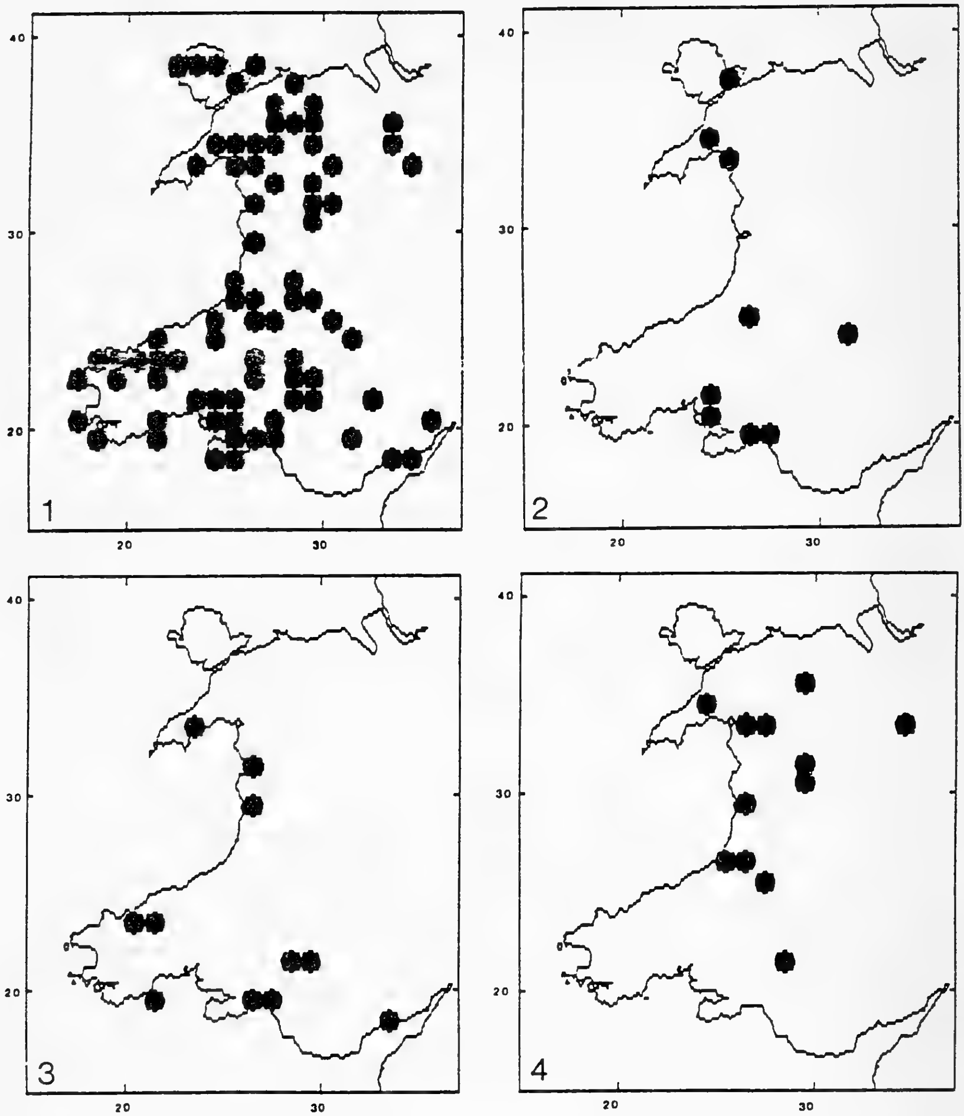
In total, the survey recorded 18 nationally scarce species out of a total of 113 carabid species recorded. Several of these were recorded only as single individuals, or from a single site, but some were widely distributed. The statuses listed after each species are from Hyman (1986) and Shirt (1987) as follows: RDBI — Red Data Book species, endangered; Na — found in less than 30 10km squares; Nb — found in less than 100 10km squares. These statuses are provisional.

Blethisa multipunctata Linnaeus (Nb)

This is a widespread species in Britain, generally scarce but it can be abundant in some places. There are several previous Welsh records and it was recorded as abundant at Rhosgoch Common, Radnor (Key, 1987a, b). WPIS found it in 10 sites. These were all nutrient rich fens and the species was most numerous where there was saturated ground with the vegetation short from heavy grazing. Recorded from the following vice-counties: Glamorgan, Carmarthen, Radnor, Cardigan, Caernarfon, Anglesey. Map fig. 2.

Elaphrus uliginosus Fabricius (Na)

Results from the carabid recording scheme (M.L. Luff, pers. comm.) suggest that this is a genuinely scarce species. There are some previous Welsh records, most recently in Radnor and Cardigan (R.S. Key, pers. comm.). WPIS found it to be widespread, with records from 13 sites, although only one was in North Wales. Most records were on one or two individuals but 24 were captured at Crymlyn Bog, Glamorgan. The sites from which *E. uliginosus* was recorded were mostly soligenous flushes, i.e. where there is lateral water movement through the substrate but the species appears highly dispersive and one individual was captured in flight by a road near Cors Caron, Cardigan. Recorded from: Monmouth, Glamorgan, Pembroke, Brecon, Cardigan, Merioneth, Caernarfon. Map fig. 3.

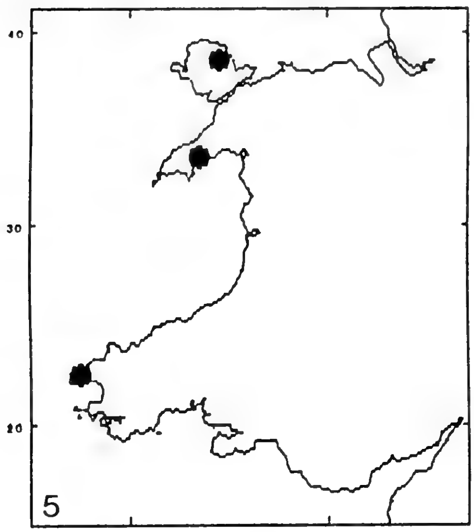


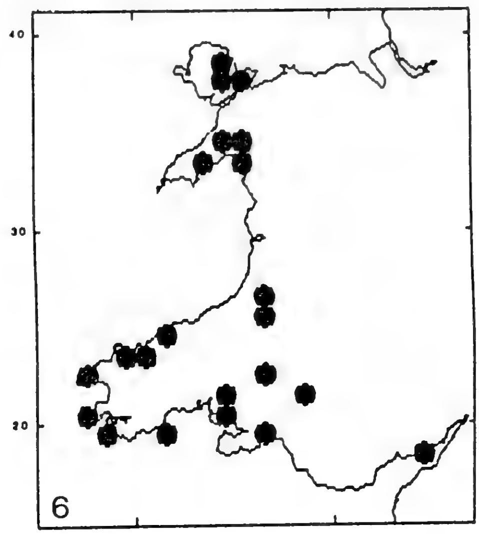
Clivina collaris Herbst. (Nb)

There are previous records for this species in South Wales, Radnor (Key 1987b), and Fowles (1990) found it to be widespread on river shingle in Cardigan. *C. collaris* would appear to be a riverbank species, not confined to shingle but also found on muddy substrates. WPIS found it in 1988 in Dolgarrog reedbed, Caernarfon. The site was an estuarine reedbed, and several other notable species were recorded at this site (see below).

Miscordera arctica Paykull (Nb)

This is a northern species, often found in bare peat in upland areas. The bare peat provides a suitably friable substrate for this apparently fossorial species. It had previously been recorded in North Wales. WPIS recorded it





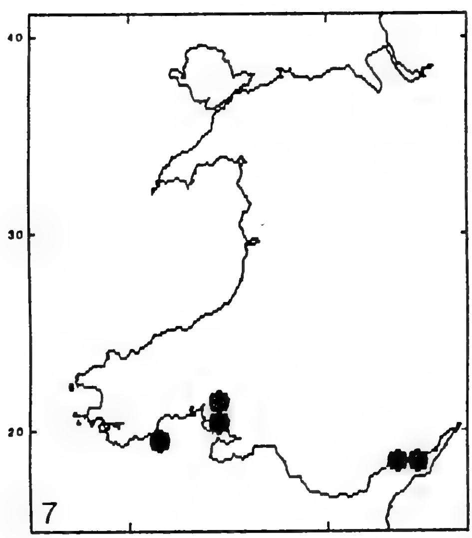


Fig. 1. The distribution of WPIS study sites in Wales by 10km squares.

Fig. 2. WPIS records of *Blethesa multipunctata.*

Fig. 3. WPIS records of *Elaphrus uliginosus.*

Fig. 4. WPIS records of *Agonum ericeti.*

Fig. 5. WPIS records of *Badister dilatatus.*

Fig. 6. WPIS records of *Chlaenius nigricornis.*

Fig. 7. WPIS records of *Oodes helopioides.*

in 1989 in a single upland site, at Gors Goch, Radnor, which may be the southernmost British record. *M. arctica* is thought to be predatory on beetles in the family Byrrhidae (Lindroth, 1974) and both *Byrrhus pilula* and *B. fasciata* were present in this site.

Trechus rivularis Gyllenhal (RDBI)

The discovery of this species, in upland blanket bog sites in Montgomery and Caernarfon in 1988 has been reported elsewhere (Holmes et al., 1990). We were disappointed not to discover it in further sites in 1989, particularly in the Berwyn Mountains, which had appeared similar habitat to the earlier sites. It has recently been found in similar sites in North-east England (Luff & Wardle, 1991).

Trechus discus Fabricius (Nb)

Single individuals were found in two sites. Llangoffan Fen in Pembroke in 1987 and Magor Marsh in Monmouth in 1988. This species was first recorded in Wales from Carmarthen in 1987 (Morgan, 1988). *T. discus* is thought to be subterranean species found on nutrient rich fens, presumably with bare mud into which to burrow.

Trechus micros Herbst. (Nb)

This is a widespread species in Britain. WPIS had a single record, from Gwenfro, Anglesey in 1988. Like *T. discus* this is probably a subterranean species, and both are likely to be under-recorded.

Bembidion iricolor Bedel (Nb)

Recorded in 1988 in Dolgarrog Reedbed, Caernarfon as with *Clivina collaris* above. There are previous Welsh records from similar saline/ esturine habitats in Cardigan and Carmarthen (D.C. Boyce, unpublished).

Tachys bistriatus Duftschmid (Nb)

A single individual was found in a grazed sedge fen at Magor Marsh, Monmouth, in 1988. This species has been recorded previously in South Wales at Crymlyn Bog, Glamorgan by Dillwyn (1829).

Pterostichus anthracinus Illeger (Nb)

Several individuals were recorded from Magor Marsh, Monmouth in 1988. These may be the first Welsh specimens. Magor Marsh had the richest carabid fauna of any site studied (40 species), and included five nationally notable species.

Pterostichus gracilis Dejean (Nb)

Several specimens were collected from a reedbed site in Pembroke in 1987 and a single individual was found in a reedbed in Carmarthen in 1989. The only previous Welsh records appear to be singles from Pwllpeiran, Cardigan (Miles, 1960) and Bardsey Island, Caernarfon (M.L. Luff, pers. comm., per R. Loxton).

Agonum ericeti Panzer (Nb)

This species shows a very strong association with ombrotrophic mires (i.e. those fed by rainwater only), being found on both high altitude blanket mires and lowland raised mires. In our study, it was recorded in 12 sites, in the following vice-counties: Glamorgan, Cardigan, Merioneth, Montgomery, Caernarfon, Denbigh, Shropshire (Wem Moss straddles the Denbigh/Shropshire border). At Figyn Blaen Brefi, Cardigan, there was a high incidence of the usually uncommon black form. Surprisingly *A. ericeti* seemed able to persist where the hydrology has been damaged by peat cutting at Fenn's Moss, Denbigh but this may be because intact bog areas remain adjacent to the cut areas. Map fig. 4.

Agonum nigrum Dejean (Nb)

Recorded in Dolgarrog Reedbed, Caernarfon, with *Clivina collaris* etc, and in a second saline reedbed at Farch-Ynys, Merioneth, both in 1988. In Wales this is an exclusively coastal insect generally found on esturine saltmarsh.

Badister dilatatus Chaudoir (Na)

This is a very scarce species, previously unrecorded in Wales. WPIS found it in three sites. One individual was trapped at Trefeiddan Moor, Pembroke in 1987, and in 1988 three were found at Cors Geirch, Caernarfon and two at Cors Goch, Anglesey. It may be significant that the three sites (map fig. 5) were in the hyper-oceanic regions of Wales; a similar distribution was found for the very scarce staphylinid *Philonthus corvinus*.

Badister sodalis Duftschmid (Nb)

One was recorded in poor fen at St David's Airfield Heaths, Pembroke in 1987. This may have been the first Welsh record, but there have since been several records from Carmarthen and Cardigan (A.P. Fowles, pers. comm.).

Chlaenius nigricornis Fabricius (Nb)

This was by far the most numerous of the "notable" species recorded by WPIS. It was found in 26 sites, and was abundant in several of these. Most sites were lowland and nutrient rich, so the species has a western distribution in Wales (map fig. 6), because of the preponderance of lowland fen habitats along the southern and western coastal fringe. Many of the sites where it was most numerous were floodplains. However odd individuals turned up on other sites, in particular on humid heaths, but it is not possible to say whether this is a real ecological association or just the result of dispersal. Recorded from: Monmouth, Glamorgan, Pembroke, Carmarthen, Cardigan, Merioneth, Caernarfon, Anglesey.

Oodes helopioides Fabricius (Nb)

This is a southern species in Britain, previously recorded in South Wales with a single record in North Wales. WPIS found it in several sites in South Wales only, and it was generally fairly numerous where it occurred. All sites were nutrient rich fens. Recorded from: Monmouth, Glamorgan, Pembroke, Carmarthen. Map fig. 7.

Odacantha melanura Linnaeus (Nb)

This species had previously been recorded from Crymlyn Bog, Glamorgan (Dillwyn, 1829; Tomlin, 1912). Although WPIS did not find it at Crymlyn, we did record it in 1989 at the nearby Pant-y-Sais, which is hydrologically part of the same unit.

Acknowledgements

We would like to thank all the landowners and NCC staff who assisted this

study. We are grateful to Martin Luff who checked several of our specimens, and supplied information on distribution, Stuart Ball who produced the mapping routine for our figures and Roger Key and Adrian Fowles who read and commented on earlier drafts of the paper.

References

Dillwyn, L.W., 1829. *Memoranda relating to the coleopterous insects found in the neighbourhood of Swansea.* Murray & Rees, Swansea.

Fowles, A.P., 1990. The Coleoptera of shingle banks on the River Ystwyth, Dyfed. *Entomologist's Rec.J. Var.* **101**: 209-221.

Holmes, P.R., Boyce, D.B. & Reed, D.K., 1990. *Trechus rivularis* in Wales. *Entomologist's mon. Mag.* **126**: 109.

— , 1991. *The Welsh Peatland Invertebrate Survey* — Preliminary Report: Methodology and study sites. CSD report no. 1125, Nature Conservancy Council, Peterborough.

Hyman, P.S., 1986. *A national review of British Coleoptera.* Part 1A. A review of the status of British Coleoptera. ISR report no. 64. Nature Conservancy Council, Peterborough.

Key, R.S., 1987a. *Blethisa multipunctata* (L.) (Col.: Carabidae), abundant at Rhos Goch Common, Radnorshire. *Entomologist's mon. Mag.* **123**: 116.

— , 1987b. Radnorshire field meeting 6th - 8th June 1986. *Coleopterists' Newsletter* **26**: 17-22.

Lindroth, C.H., 1974. Coleoptera: Carabidae. *Handbooks for the identification of British insects,* **4**(2). Royal Entomological Society of London.

Luff, M.L. & Wardle, J., 1991. *Trechus rivularis* (Gyll.) (Col.: Carabidae) in Northumberland. *Entomologist's mon. Mag.* **127**: 42.

Miles, P.M., 1960. (No title.) *Nature in Wales* **6**: 97.

Morgan, I.K., 1988. A summary of interesting beetle records from Carmarthenshire. *Dyfed Invertebrate Group Newsletter* **9**: 14-16.

Shirt, D.B. (ed.), 1987. *British Red Data Books:* **2**. Insects. Nature Conservancy Council.

Tomlin, J.R. Le B., 1912. *The Coleoptera of Glamorgan.* Part 1. Trans. *Cardiff Naturalists Soc.* **45**: 41-58.

Aplocnemus pini (Redt.), not *nigricornis* (F.) (Col.: Melyridae) in Epping Forest, Essex.

In the list of Epping Forest Coleoptera by the late F.D. Buck (1955, *Entomologist's mon. Mag.* **91**: 172-192), the rare *A. nigricornis* (p. 184) is given as widely distributed in the area, while there is no mention of the less rare *A. pini.* I have no doubt, however, that this is an error due to the fact that Joy (1932, *Pract. Handb. Brit. Beetles,* **1**: 431) treats our two species as one under the name *nigricornis.* Actually they are quite distinct, as is now universally recognised (cf., for instance, Allen, 1975, *Entomologist's mon. Mag.* **111**: 210). I have found *pini* more than once in Epping Forest and also not far away at Waltham Abbey and Cheshunt but never *nigricornis,* which I have taken only in East Kent (Orlestone Forest, Ham Street).— A.A. Allen, 49 Montcalm Road, Charlton, SE7 8QG.

REMINISCENCES OF AN AMATEUR LEPIDOPTERIST 1920-90

E.P. Wiltshire

Wychwood, High Road, Cookham Rise, Berks SL6 9JF.

(Continued from p.256)

The news of Wilhelm's death made me wonder if he had ever become reconciled with Fred. When I heard that Fred had for years been setting lepidoptera taken by Dr E. Diehl and P. Sianter in Sumatra for Dr Kobes, who was a dentist and amateur lepidopterist living in Göttingen and editing "Heterocera Sumatrana", I wrote to the latter for further news of Fred. Dr Kobes replied that Fred had been obliged to give up setting due to Parkinsonism, after years of valuable assistance. But Fred had not been entomologically active otherwise; instead, he had become quite famous as a cactus-grower, and continued to live with his wife at the Paderborn address. This prompted me to write again to Fred for further enlightenment, on past events, and present conditions. Fred replied, dictating the words to his wife, and gave me a few more dates and facts. He was an interpreter in Afghanistan from 1941, was "appointed in 1944 to Albania" where he "assisted English officers"; briefly visited England as a prisoner, was released and went to find his family in the Russian zone, was there arrested by the Russians and sentenced to twenty-five years' imprisonment "as an English spy"; received an amnesty after fifteen years and returned to his family. He had two sons, a daughter, nine grand-children and one great grandchild. He reciprocated my Christmas greetings. But not a word about his brother, with whom he evidently did not become reconciled.

Can't one say that Fred was the less unlucky in the end?

References (Part 8)

Brandt, W., 1938-9. Beitrag zur Lepidopteren-Fauna von Iran. *Entom. Rundsch.* **55**: 43-56: 61, *partim*. 318 figs, s col. pl.

— , 1939. *Idem, ibidem,* **56**: 231-300, *partim*. 3 pl.

— , 1941. Beitrag zur Lepidopteren-Fauna von Iran (3,4): *Mitt. Munch. ent. Ges.* **31**: 836-886, 5 pl.

— , W., 1947. Notes on some Harmodia species. *Notulae entomol.* **27**: 1-4, 2 pl.

Bythinki-Salz, H. & Brandt, W. (1937). New Lepidoptera from Iran. *Entomologist's Rec. J. Var.* **49** (5-7) sup. 1-9.

Holik, O., & Sheljuzhko, L. Über die Zygaenen-Fauna Osteuropas, Kleinasiens, Irans, Zentralasiens und Sibiriens. *Mitt. Münch. ent. Ges.,* 43-48.

Wiltshire, E.P. in L. Sheljuzhko, 1967. Noctuidae des 1 & 2 zoologischen Forschungen von Dr Z. Kaszab in der Mongolei. Reichenbachia, Staatss. Mus. Tierk. in Dresden **9**(24): 209-227, 1 pl.

9. New York

I reached New York in late August 1944, travelling on one of the two "Queens" acting as transatlantic troopships for Americans and half-empty on the westward trip. We were in convoy, though the U-boat menace had by then diminished.

I worked down-town in the Consulate-General near a ferry-terminal and small park called the "Battery". Immense sky-scrapers were all around, and a seamen's club near-by where we met those who entertained our merchant-marine when on shore-leave.

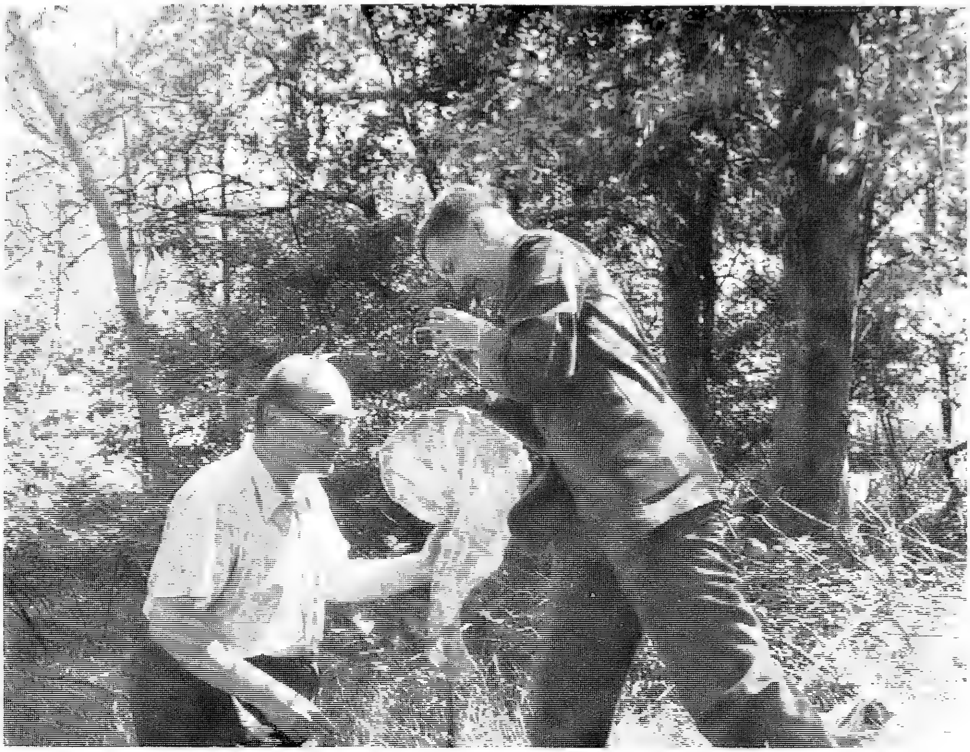
My flat was on the eighteenth floor of an apartment-block at Fifth Avenue and Washington Square. It had a balcony with a fine view, but no moths of interest came to its lights, unlike those that came to balcony lights at our Rio flat, in 1958.

As the seas seemed now safer I wrote to Bombay and asked the Natural History Society to ship my Persian lepidoptera-boxes to me there. They had been stored already packed in straw and a zinc case. To my joy the whole lot arrived in perfect condition.

New York was the first big city since Bombay and London (and my stay at Bombay was brief). Such places all have their own entomological circles, centred around a natural history museum, a club, and a periodical. The first American entomologist I met was the hymenopterist Albro Gaul, a young entomologist working for the Department of Agriculture in touch with the US Customs. He and his Anglophile aunts entertained our merchant marine. He had a dark-room in their flat where he showed sailors how he developed photographs.

The staff of the splendidly equipped American Museum of Natural History at Central Park and 79th Street were my next entomological contacts. For one familiar with the group of stuffed African elephants that greeted one in South Kensington, where now dinosaur skeletons rear up the jointed necks, the dioramas of this New York Museum on either side of the hall were impressive particularly the ones showing African mammals in their jungle habitats. In upstairs rooms I met Schwarz, a coleopterist with an English-born wife, also Comstock the Rhopalocerist. It was natural I should meet Wm. T.M. Forbes from the US-state Cornell University at Ithaca, when he "came to town". He was known as "Pinky" to his many students, and was a great character, a staunch Repulican and anti-New Deal zealot. He was remarkably tolerant of amateurs like myself and encouraged one's first steps using a microscope. I showed him my Persian boxes and he kindly drew pictures of the genitalia of some, and wrote descriptions, which I inserted in my next article for the Royal Entomological Society, London (1946b). It was my second article to illustrate genitalia and my own figures (1-4) owed something to those by Forbes (5-7). My first to do so was published the same year in this magazine, showing *Melitaea* genitalia (Wiltshire, 1946a).

Among lepidopterists I also met a refugee from Europe, one Albert Zerkowitz, who made his entomological mark in the States with an article on Portugese lepidoptera (1946); he had spent a year or so in Lisbon before jumping a ship to New York. He was a large man with a tiny wife and worked for a shipping firm whose offices were in the Battery area; this permitted me to lunch with him opposite the Consulate-General quite



Danaus plexippus. Albert Zerkowitz (left) and the author. New York 1945.

frequently and we compared notes on various topics, such as the zoogeography of lepidoptera, techniques in studying them, and the good and bad points of lepidopterists (he had got to know Boursin when in Paris). He also introduced me to the nearest lepidoptera-habitats near New York city; the easiest good one to reach was Van Cortland Park for which one descended at one of the furthermost stops on the Elevated Railway crossing the Bronx and running the whole length of eastside Manhattan. It was so different from the tamed rectangle of Central Park, hemmed in by roaring avenues and streets. At Van Cortland one was in genuine country with masses of American golden-rod and tall trees; I remember plenty of Camberwell Beauties (*Nymphalis antiopa* L.) flew there on our day of visit.

Another time I attended an amusing sort of field meeting, more social than entomological, at Baldwin, Long Island. But I took a photo of a Monarch (*Danaus plexippus* (L.)) which I snapped on top of Zerkowitz's bald head. In my photo you cannot tell what the substrate is, but someone else took a brilliant photo of me and Zerkowitz which reveals all. I still laugh when I see it, which I wouldn't do if I had the pinned specimen in a box. Actual Monarchs, in late summer around New York, are two-a-penny, not merely in garden suburbs like Baldwin, but quite often on the docks of the Hudson and East River in the city. It seemed to justify the theory that Monarchs from America reach England by hopping a ship.

Of course the loveliest country in that part of the States was among the lakes and woods of the Adirondacks, where my wife and I took a week's break in a motel with my old Cambridge room-mate Alistair Cooke, his wife Jane, and some friends. One evening I took sugar and my light into the woods and was struck by the wealth of *Catocala* species flying around. But I collected none, in any of these outings, for I sensed that I would be going back to the Old World before long, and my Persian lepidoptera occupied rather fully most spare moments.

We left New York for Cairo, via Newfoundland, Shannon and Geneva on TWA trip 934, our first air flight, carrying with us a small daughter, Kaye, weighing 12 lbs, 11 oz. It was 6th August, one year after the first atomic bomb fell on Japan. We were at peace again.

References (Part 9)

Wiltshire, E.P., 1946a. Middle East Lepidoptera IV (mis-printed VII). *Entomologist's Rec. J . Var.* **58**: 25-32 with Plates I, II, III (IV, VI, VII) (March & June 1946).
Wiltshire, E.P., 1946b. Middle East Lepidoptera V. *Proc. R. Ent. Soc. London* (B) 15 (9-10): 118-128, 1 plate, 7 figs (Oct. 1946).
Zerkowitz, A., 1946. The Lepidoptera of Portugal. *Journ. N.Y. Entom. Soc.,* **54**(3): 61-87.

10. Cairo days

Working as Consul in our Consulate General in Cairo for three years from 7th August 1946, I soon found the headquarters of my favourite Egyptian institution, the "Fouad 1 Society of Entomology." As an enlightened paternal monarch the previous king, Fouad, had supported science and the arts, and under his patronage the entomological society got handsome quarters after his death and succession by his son King Farouk, who was likewise patron. Unlike some European kings, he was not particularly interested in lepidoptera but on principle followed his father's example. The secretariat and insect collections were housed in this building, the secretary, organiser and editor being a charming old Greek batchelor called Anastase Alfieri from Corfu. He had collected several orders of insects all over Egypt and specialised in the hymenoptera.

In Alfieri's flat I met perhaps the most prominent Egyptian entomologist, Efflatoun Bey, a professor of entomology at Fouad 1 University. This westernised old gentleman had explored the Gebel Katerina of southern Sinai with Alfieri in 1940. Of the interesting species they had taken there some lepidoptera were still undiagnosed, or even wrongly determined in 1946. Another big building in Dokki, Cairo, was the Ministry of Agriculture. Like the University it had its own insect collection and two or three entomological employees, those whom I met there being Abdul-Hamid Ibrahim Effendi, Dr Priesner (a thrips specialist) and the excellent artist Assaad, who painted the colour plate of my first important article (1947) showing the new moth species, *Coenobasis farouki* and

Anydrophila fouadi both from S. Sinai. At that time they were known from nowhere else; but both proved to extend into Arabia, the former in the west and south, the latter widely eastwards in deserts.

I had already dedicated a new blue from Gebel Katerina to Alfieri himself; it was published the following year; and these two handsome moths, I suggested to Anastase, might be named after the first two patrons of the Society.

"Yes", said he, "provided His Majesty consents."

He eventually obtained the king's permission, but not without difficulty. The king hummed and hawed and was quite suspicious, and Alfieri only just managed to persuade him that it was not shameful or demeaning to combine the generic name *Coenobasis* with the king's name. Such an idea had never occurred to either of us. Born speaking Greek, Alfieri was able to assure His Majesty that the words referred to the wing-venation.

Alfieri was most helpful in many ways, negotiating with a superannuated member of the Society to sell me his used Zeiss binocular microscope, and above all editing with his customary skill and organising ability my manuscript of the *Lepidoptera of Egypt,* revising the larger moths and butterflies of the country; it appeared in the Society's Bulletin in 1948, 9, in two parts. For the first I was able to get the printing of the plates done by V. Siviter-Smith & Co. of Birmingham, whose brilliant work had first appeared in Bernard Kettlewell's 1943 article about *Callimorpha dominula* (L.) (1943). The photogravure work, in black and white, of the second part of my list (1949) was, as Alfieri thought advisable, printed by a Cairo printer, who was less meticulous.

Though I did collect myself around Cairo and the Mariout at first, the Arab-Israeli war of 1948 made excursions rather undesirable, and for reasons also of a change of air my best collection trips of these three years were done in Cyprus, on local leaves with my family. The first of these was to the fascinating Catsellis Dome Hotel of Kyrenia, on the island's mountainous north coast in March-May 1947. The second was in the higher Troodos mountains in August-September 1949, en route to a new posting.

The highest points of Cyprus, of course, do not compare with those of the Lebanon, Turkey, Iraq or Iran, being wooded to the top. They lack those interesting, isolated areas of dwarf shrubs where endemic races or species survive above the tree line. The genus *Zygaena,* too, is an absentee on the island. As for the coastal strip around Kyrenia, I noted there many of the same species as in the Lebanon, with several endemics added. I had already visited the Dome hotel in 1934 with my mother at Christmas, a season when moths or larvae are active at that low altitude. Another interesting aspect of the peak zone of Middle Eastern mountains was the annual upward migration of the common migrants such as the Painted Lady (*Cynthia cardui* L.), the Silver-striped Hawk (*Hyles livornica* Esper) and the Small Mottled Willow (*Spodoptera exigua* Hb.). I had begun tabu-

lating the dates and heights at which these insects or their larvae appeared, and was coming to conclusions contrary to many views held by stay-at-home philosophers on the survival value of northward migrations to the British Isles and northern Europe.

In those early years, the facts of such northward migrations could no longer be denied but theoreticians tended to consider them as analogous to those of migratory birds. The conclusions I deduced from my tabulations was that migrations to local peaks were of at least equal survival value to those to the more distant northern lands, for these common and widespread migrant lepidoptera. Boris Uvarov, for whom I had collected some orthoptera in Iraq and Iran, was interested in my conclusions and persuaded the Royal Entomological Society to publish my paper of tables and conclusions in 1946.

Boris was now in charge of an independent army of small anti-locust units working throughout the desert zone of Africa and S.W. Asia, at the end of the war. These teams were not army units like those combating malaria organised by the London School of Hygiene and Tropical Medicine, some of whom I had come across at Basra about 1943, though both had been co-ordinated by the Middle East Supply Centre, Cairo, under a British Minister. There remained a task, after hostilities had ended, for this organisation to do while the many countries involved slowly returned to some sort of normality. The locusts continued to threaten local food-supplies and that particular war went on. So we saw entomologists in the teams who regarded Cairo as a base for relief from their field activities in Arabia. Roger Waterston was one of these, and his wife and daughter stayed in Cairo. The teams caught lepidoptera in between attacking locusts and many of the specimens were passed to me for study. To name them I was forced to tackle the Afro-tropical fauna, which predominated in S.W. Arabia.

Thanks to the studies of these teams, especially the work of Dr Rainey, insect migrations came to be correlated more with meteorology and topography and considered less a matter of individual purpose and intelligence in the migrants.

References (Part 10)

Kettlewell, H.B.D., 1943. A survey of the insect *Panaxia (Callimorpha) dominula* L. *Proc. & Trans. S. Lond. Ent. & Nat. Hist. Soc.* 1942-3: 1-49, 4 pl.

Wiltshire, E.P., 1946. Studies in the geography of lepidoptera IV: Some Middle East migrants, their phenology and ecology. *Trans. R. Ent. Soc. Lond.* **96**(10): 163-186.

— , 1947. Middle East Lepidoptera, VI. Two fine new species from southern Sinai. *Bull. Soc. Fouad 1 Entom.* **3**: 1-2, 1 pl.

— , 1948. The Lepidoptera of the Kingdom of Egypt, Pt. 1, *ibidem,* **32**: 203-296, figs. 1-68 & 7 pls.

— , 1949. *Idem* Pt. 2, *ibidem* **33**: 381-460, figs 69-114 & 2 pls.

(to be continued)

ON THE HIBERNATION OF TISSUE MOTHS *TRIPHOSIA DUBITATA* L. AND THE HERALD MOTH *SCOLIOPTERYX LIBATRIX* L. IN AN OLD FORT

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Introduction

THERE ARE occasional published records of hibernating lepidoptera in both natural sites such as caves (Tulloch, 1935) and man-made structures (Showler, 1960). These refer to a variety of species, but especially the Herald moth *Scoliopteryx libatrix,* the Tissue moth *Triphosia dubitata* and the Peacock butterfly *Inachis io.* Detailed studies of hibernation in Britain do not seem to have been undertaken.

During the winter of 1985/86, we were fortunate to obtain the permission of the National Trust to examine the invertebrate fauna of a late 19th century fort at Box Hill, Surrey. This site was already known to support hibernating moths and had been a popular venue for collectors of the Tissue moth. The fort had recently been isolated by fencing in preparation for renovation and was therefore unlikely to be seriously disturbed, thereby making it suitable for a long-term study of the moths. This article records the findings of our study which was intended as a pilot study to be followed up by a more detailed investigation.

Description of the fort

The fort was constructed in the late 19th century as a mobilisation centre for infantry. It passed into private ownership in 1908 and subsequently to the National Trust in 1914 (Littledale, Locock and Sankey, 1984). Thereafter, it fell into disrepair and deteriorated until 1985 when external repairs commenced. It is constructed on two levels (see figure 1). The upper level comprises five major chambers, each with twin iron doors and shuttered windows, and three small ante-chambers. This section is above ground and, today, all the major chambers are open to the elements with

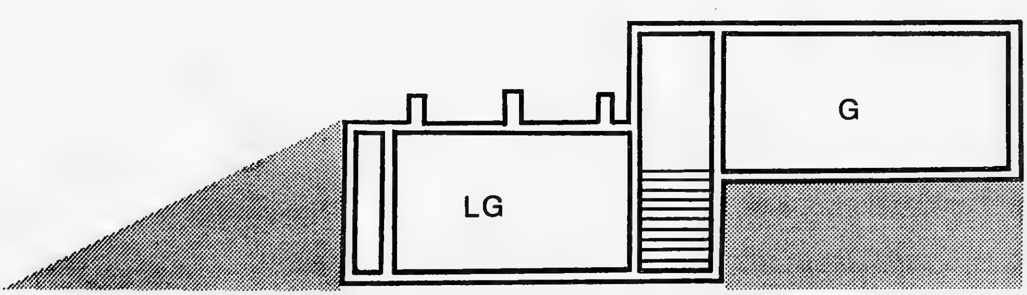

Fig. 1. Cross section of Box Hill fort, showing the relative positions of the upper and lower chambers. Shaded areas indicate ground level.

shutters and doors either jammed open or missing. Access to the lower chambers, which would have held the magazine, is gained by a series of steps from both ends of the building. The lower level is effectively subterranean, having been covered with earth after construction. A major corridor links both staircases and provides access to the three main chambers (see figure 2). A narrow corridor runs around the rear of these chambers with a small "window" into each chamber, presumably to allow observation of the contents. Each chamber was ventilated by flues which are now blocked with rubble. The fort's interior is generally sound but with some leaching of lime and corrosion of iron reinforcing.

Survey techniques

Visits to the fort commenced on 13th October 1985 and ceased on 27th April 1986. Whenever possible, visits were made on two consecutive days so that overnight activity and associated physical conditions could be measured. It was our intention to record overnight measurements every two weeks but this became impossible in mid-winter when the site was snowed-in for some time. Each chamber of the fort was allocated a code number (see figure 2) and the numbers of individuals of two moth and one butterfly species were recorded. Particular attention was given to the Tissue moth including separate counts for each sex.

Three physical parameters were identified as possible factors affecting hibernating species. One, light, was not investigated because of the difficulty of making accurate readings. However, all of the chambers on the lower level were effectively in complete darkness whilst those on the upper level were either well lit (G1 to G5) or sparsely lit (G6 to G8). Measurements of humidity using a whirling hygrometer were attempted but abandoned because there was some doubt about their accuracy. More

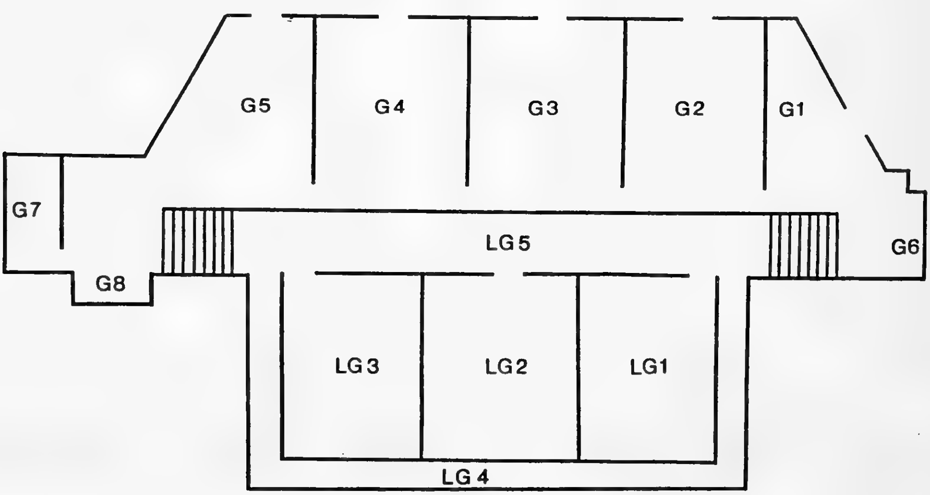

Fig. 2. Plan view of Box Hill fort with code for identification of individual chambers.

advanced equipment was not available to us. Maximum and minimum temperatures were recorded from various parts of the fort and compared with a sheltered location outside the fort until the theft of one thermometer. From thereon, measurements of external temperature and that of LG2 only were recorded.

Results

As discussed earlier, examination of the physical parameters was rudimentary and only a limited amount of data was obtained. Data comparing one lower chamber (LG2) with external temperatures does, however, illustrate the differences between the protected and insulated lower chambers and the external environment. This is demonstrated in figure 3 which shows that the maximum temperature variations in LG2 amount to no more than 2°C on any one night whereas external fluctuations of between 3 and 9°C were recorded. It seems reasonable to suggest that there are similar trends in the adjoining chambers and that, at least in part, these explain some of the observations on the Lepidoptera. However, each species exhibited different characteristics and therefore the results for each species are discussed separately.

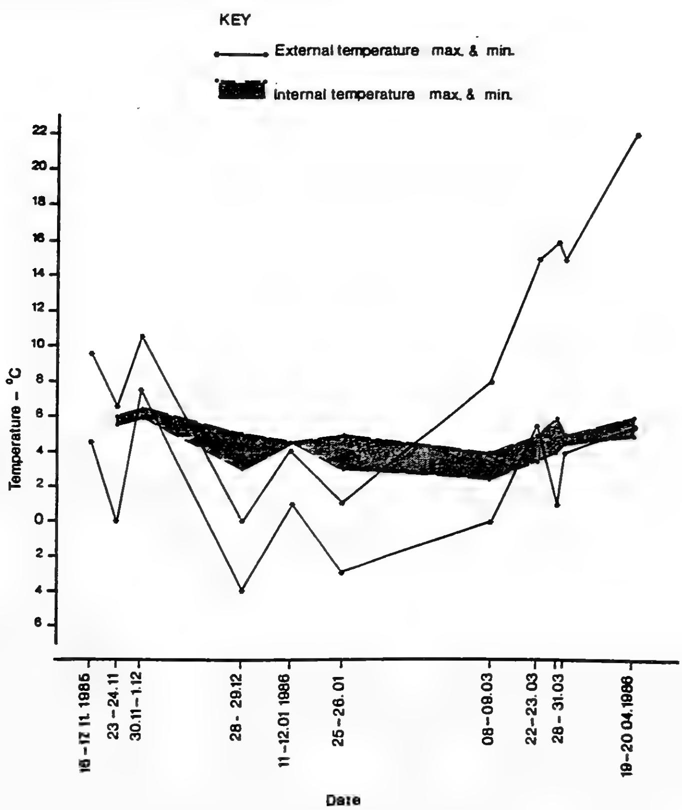

Fig. 3. External and internal maximum/minimum temperatures in Box Hill fort during the winter 1985/6. Internal temperatures are based on readings in chamber LG2.

The Tissue moth

There are some twenty records of *Triphosia dubitata* in Surrey, the majority of which are of single individuals with the exceptions of those from Box Hill where this species is known to breed; those for the winter 1985/86 constitute the largest density of individuals recorded in the county. *Triphosia dubitata* has very clear preferences when choosing a hibernation site, as is illustrated in appendix 1 which shows its preference for the lower chambers. Taylor (1979) found large numbers of *T. dubitata* hibernating in a limestone cave and estimated the temperature of the cave to be between 50°F and 55°F (10 - 12.5°C) and suggested that it varied little from this. In November 1985 at Box Hill, we found the lower chamber LG2 temperature to read 6.5°C or 43.7°F by day and as can be seen from figure 3 the lowest temperature recorded over the winter was 2.5°C (36.5°F) on the coldest night. Although there are fluctuations, these do not replicate external fluctuations.

During all of our visits, the majority of the moths were scattered randomly with very little evidence of the frequency of pair associations described by Taylor (*loc. cit.*) who found each female accompanied by a male. During the study, short-term pair associations were observed, however, as was mating. Although the moths often appeared torpid, there was obviosly some movement during the winter and mating may not be confined to the autumn.

Mating pairs were found on: 26.10.1985, one pair in LG5, continued *in cop.* at least until 27.10.1985; 16.11.1985, one pair in LG2 which had parted by 15.30 on 17.11.1985; 23.11.1985, one pair in LG4, continued *in cop.* at least until 15.45 on 24.11.1985.

On three occasions pair associations were observed: 26.01.1986, two pairs in LG2; 16.02.1986, one pair in LG5; 23.03.1986, one pair in LG4 which remained in this position until 30.03.1986.

On the basis of these observations, it is difficult to establish the role of the pair association. If, as one might suspect, the pair association follows mating, there would seem to be some evidence that mating is not confined to the autumn period. Moreover, if mating were confined to the autumn, there would be no reason for the survival of the males through the winter. During the study period, the ratio of males to females never exceeded 1:3. The mating strategy of *T. dubitata* would appear to be intermediate between that of species such as *Inachis io* which mates in the spring after overwintering (Emmet and Heath, 1989), and species such as *Chloroclysta miata* L. that mate in the autumn and only the females overwinter (Skinner, 1984).

On one occasion, moths were found beneath scattered timbers and rubble on the lower level. This might help to explain the fluctuations in numbers during mid-winter. Possibly, individuals secret themselves in inaccesible places, only to be counted at a later date after a period of

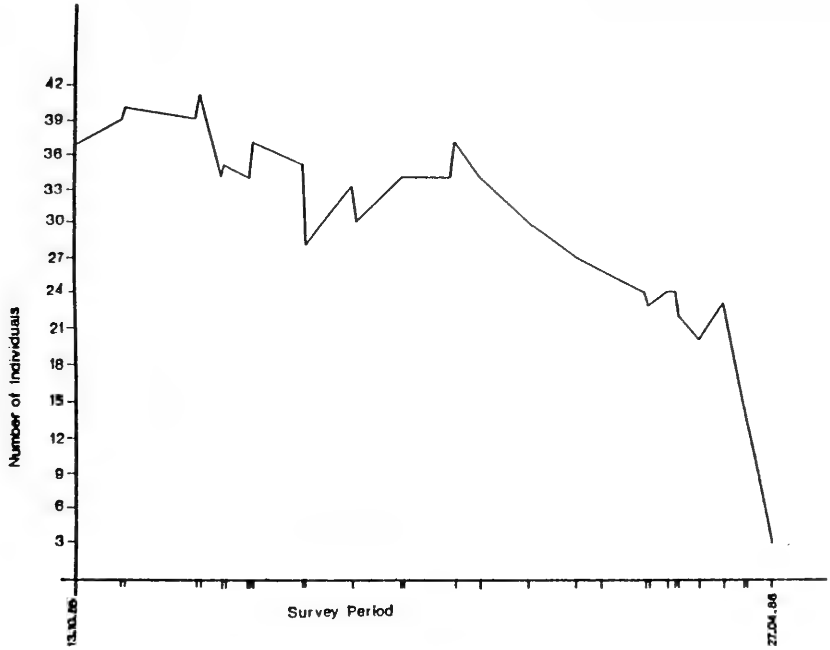

Fig. 4. Total numbers of the Tissue moth *Triphosia dubitata* in Box Hill fort during the winter 1985/6. Sampling dates are given in appendix 1.

activity. There certainly appears to be substantially greater activity among the sample of *T. dubitata* than amongst that of *Scoliopteryx libatrix* with quite considerable fluctuations in numbers between individual chambers.

The sharp declines in the numbers of *T. dubitata* recorded in early winter may reflect a shifting population responding to changes in temperature but other reasons are more likely. The first decline between 17.11.1985 and 23.11.1985 of seven individuals reflects losses, including six from LG3 coinciding with the construction of a small fire in that chamber. Similarly, on the night of 14/15.12.1985, the site was entered and a thermometer was stolen. Over the same period, seven *T. dubitata* were recorded to have left. This night appears to correspond with a visit by collectors subsequently reported to us. It is interesting to note that the numbers recovered to some extent and perhaps in early winter the population is far from stable with losses replaced by new arrivals.

From mid-February onwards, there was a steady decline in numbers which presumably reflects the gradual cessation of hibernation. However, during this period, a number of small bats (up to three, possibly Daubentons' bat *Myotis daubentoni*) were observed. These may have contributed to the decline, especially as *T. dubitata* appears to be active and therefore more susceptible to bat predation than the more torpid *S. libatrix*.

The Herald moth

With the exception of the most exposed chambers G1 to G5, *S. libatrix* was found throughout the fort, initially in greater numbers on the upper floor but subsequently the balance changed in favour of the lower chambers. This is represented by figure 5 which depicts the fluctuations over the survey period. Up until the end of December, both total numbers and the numbers in individual chambers fluctuated considerably, with some evidence of casual movement between chambers. From late January onwards, most moths were torpid and numbers remained relatively constant in most chambers. Some chambers, however, proved to be far less suitable for torpid moths, especially G7, G8 and LG5, all of which are more likely to be exposed to unusual air currents and the effects of temperature variations. This is particularly true of G7 and G8 where 90% of the moths disappeared. It seems likely that these were casualties of extreme cold, exposure to wind, or the presence of a predator (probably either bats or spiders). The first obvious fall in numbers on the upper level corresponds with a sharp drop in the overnight temperature (see figure 3). The second fall corresponds with the loss of nearly all the occupants of chamber G7 and might reflect the activities of a predator.

South (1961) suggests that the earliest moths to emerge from hibernation are those that hibernate in buildings. This may be true, as a comparison between the rate of departure on the upper and lower levels of the fort (figure 5) suggests that those in the upper chambers respond first and

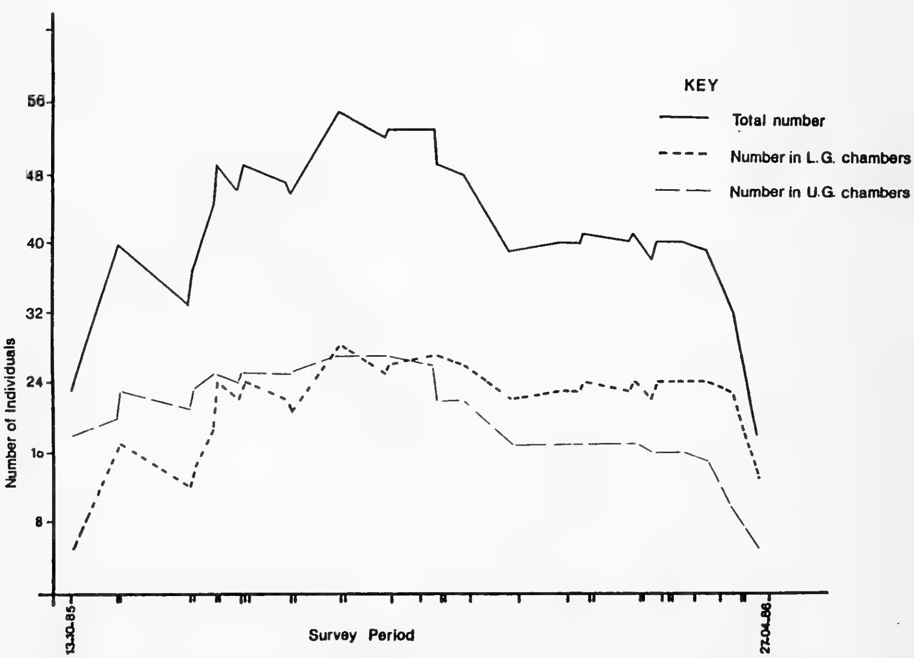

Fig. 5. Analysis of the distribution of the Herald moth *Scoliopteryx libatrix* on the upper and lower levels of Box Hill fort during the winter of 1985/86, compared against total number recorded. Sampling dates are given in appendix 1.

perhaps exhibit similar trends to those hibernating in outhouses; however, this does not seem to be a satisfactory explanation for the losses in January and February when conditions were sufficiently severe that the programme of visits was disrupted.

Peacock butterfly *Inachis io*

A total of seven individuals were recorded. Of these, six were found in the upper chambers and the seventh close to the top of one stairway (LG5). All seven remained until at least 02.02.1986 but in the period between this visit and the subsequent visit on 16.02.1986 all but one had disappeared. The survivor remained in hibernation until late April, disappearing between 20.04.1986 and 27.04.1986. The sample size was too small to make any definite comments but it would seem that the species seeks out sheltered spots, rarely far from well lit areas, which would be consistent with its diurnal habits. Having established their hibernating position, the butterflies do not move, regardless of the conditions. Indeed, it was not uncommon to see them covered with condensation. The principal chambers used by the butterfly were G3, G6, G7, G8 and LG5.

Other observations

During this study, it became apparent that each species of lepidoptera adopted differing positions on the surfaces of the fort. *Inachis io* invariably chose a high point, usually hanging from a ceiling; *Scoliopteryx libatrix* predominated on the ceilings or high on the walls whereas *Triphosia dubitata* rarely settled anywhere but on the walls or under rubble. Examination of a pill box at White Downs to the west of Box Hill also indicated the wider range of hibernation sites used by *S. libatrix* and *I. io*. At this site, a large aggregation of *S. libatrix* was found on the roof of the pill box together with smaller numbers of *I. io* but *T. dubitata* was not present.

We were also fortunate to observe the arrival of the hoverfly *Eristalis tenax* searching for hibernating positions. Stubbs and Falk (1983) record that this species hibernates in buildings and sheltered crevices. It is therefore interesting to note that we found aggregations of this fly in holes in the wall of G5 where nails or bolts had been removed together with a portion of plaster. These individuals were first noted on 26.10.1985 and were found to have departed between 09 and 22.03.1986.

The fauna of the fort was otherwise very limited but included large numbers of the mosquitoes *Culex pipiens* L. and *Culiseta annulata* (Schrank), and the cave-dwelling spider *Meta menardi* (Latrielle).

Limitations

This study was undertaken to establish the feasibility of a more detailed project and, as such, experienced many of the difficulties which might

influence the results of such efforts. Indeed, it became clear that very heavy commitment would be required and this was beyond the options open to the authors. The study commenced some time after hibernating species started to assemble and therefore the entire hibernation pattern was not recorded. It is clear, however, that with more detailed examination of physical parameters and more frequent recording of the populations, a very useful insight into moth hibernation might be achieved.

This site proved to be far more vulnerable to intrusions and disturbance than was originally thought. On one occasion, a fire was lit in one of the lower chambers (LG3) and as a result the moths moved to other venues, some appearing to vacate the building entirely. The theft of, and vandalism to, the thermometers was a serious blow as replacements were not immediately available. It also transpired that a visit by collectors resulted in the loss of some of our sample.

Discussion

The results of this study suggest that hibernating lepidoptera adopt a series of different hibernation strategies. The importance of physical parameters, such as fluctuation in temperature, seems to vary between species. It is likely that *Triphosia dubitata* has quite exacting requirements for hibernation sites whilst *Inachis io* and *Scoliopteryx libatrix* are far less demanding. This study also indicates that the degree of activity by each species during the hibernation period varies. It would appear that *T. dubitata* is comparatively active for much of the time whilst *S. libatrix* becomes extremely torpid during the coldest months. *Inachis io,* however, is capable of withstanding quite unpleasant conditions which are avoided by the other two species.

This study also raises the intriguing question of mating patterns in *Triphosia dubitata*. It would appear that there is some activity throughout much of the hibernation period. Furthermore, what is the purpose of the pair association? It is equally interesting to note that throughout the survey, no mating pairs of *Scoliopteryx libatrix* were recorded.

Given greater effort and better funding, a more detailed study at this site offers considerable potential. It is particularly interesting because an examination of temperature gradients is possible within what is effectively an enormous choice-chamber.

Acknowledgements

This study was carried out with the permission of the National Trust. We would like to thank Mr Malcolm Locock and his staff for their help and co-operation during this study. We would also like to thank Mr J.H. Bratton and Dr P.M. Waring for useful criticism of this text.

References

Emmet, A.M. and Heath, J., 1989. *The Moths and Butterflies of Great Britain and Ireland* Vol. 7, pt. 1. Harley Books, Colchester.

Littledale, H., Locock, L.M. and Sankey, J.H.P., 1984. Box Hill. *The Box Hill Management Committee.*
Showler, A.J., 1960. *Scoliopteryx libatrix* in hibernation. *Entomologist's Rec. J. Var.,* **72**: 36.
Skinner, B., 1984. *Colour identification guide to the moths of the British Isles.* Viking.
South, R., 1961. *The moths of the British Isles* (4th ed.). Warne. London.
Taylor, B.J., 1979. *Triphosia dubitata* Linn. hibernating in limestone caves in Breconshire. *Entomologist's Rec. J. Var.,* **91**: 173-174.
Tulloch, J.B.G., 1935. *Vanessa atalanta, Scoliopteryx libatrix* and *Triphosia dubitata* hibernating in caves. *Entomologist's Rec. J. Var.,* **68**: 93-94.

Appendix

Records of *Triphosia dubitata* and *Scoliopteryx libatrix* on both upper and lower levels during the survey period.

	T. dubitata		*S. libatrix*	
Date	Lower level	Upper level	Lower level	Upper level
13.10.1985	36	1	5	25
26.10.1985	39	0	19	20
27.10.1985	40	0	17	23
16.11.1985	38	1	12	21
17.11.1985	40	1	14	23
23.11.1985	34	0	19	25
24.11.1985	35	0	24	25
30.11.1985	32	2	22	24
01.12.1985	34	2	23	25
02.12.1985	35	2	24	25
14.12.1985	35	0	22	25
15.12.1985	28	0	21	25
28.12.1985	32	1	27	27
29.12.1985	29	1	28	27
11.01.1986	33	1	25	27
12.01.1986	34	1	26	27
25.01.1986	33	1	27	26
26.01.1986	36	1	27	22
02.02.1986	31	1	26	22
16.02.1986	29	1	24	17
02.03.1986	26	1	23	17
08.03.1986	25	1	23	17
09.03.1986	25	1	24	17
22.03.1986	24	1	23	17
23.03.1986	22	1	24	17
28.03.1986	23	1	22	16
30.03.1986	23	1	24	16
31.03.1986	21	1	24	16
06.04.1986	20	0	24	16
13.04.1986	23	0	24	15
19.04.1986	14	0	21	10
20.04.1986	13	0	11	9
27.04.1986	2	1	13	5

Hazards of butterfly collecting — Brazil, May 1989

After finalising a business trip to Brazil, there was a week left on my Cruzeiro airpass, so I decided to go up to Manaus. I had already flown half a dozen sectors on this pass, so value for money on the 200— it had cost was already high. I could not get a seat on a direct flight, so my final itinerary became Sao Paulo, San Salvador, Recife, Fortaleza, Belem, Santarem, Manaus. The many hops somewhat camouflaged the vastness of Brazil (emphasised more clearly on the direct return flight to Brasilia which lasted four hours and twenty minutes).

Manaus is an agreeably disorganised place, though the famous Opera House was closed for expensive restoration, the subject of much political controversy. The next day I set off to organise the five days I had available. For two days I hired an outsize, chauffeur-driven, American gas-guzzler of uncertain vintage with the promise of reaching the receding edges of the rainforest. The package came to the same as a normal rental car, which was unavailable. The driver turned out to be one of the stewards from the plane; most Brazilians work on two, three, or even four jobs. One of the saddest things about Brazil is that many, if not most, well-educated young people have emigration as their main ambition.

In Latin America it is often difficult to find some accessible rainforest unless you know in advance exactly where to go. One reason for this is that city people on the while find the forest both irrelevant and sinister, and are therefore unable to give sound advice. Only recently, and mainly among the young, is this attitude changing. Anyhow, we did find some suitable forest, but obviously it was a poor season. I recorded less than a hundred species during two days, and I seem to remember someone claiming 600 (either at Belem or Manaus).

Next, I went on a nature trip up the Solimoes River (Manaus is on the junction of the Solimoes and the Amazon itself). Even the small and cheap operator I had chosen charged about the same per day as the most expensive hotel in Mauaus, but given the time constraints there was no way in which I could organise a river trip alone.

We were only three people on the trip, a Swiss couple — both investment bankers — and myself. An ancient river boat with a leisurely pace took us up to the rickety "river camp", perched on stilts, in four hours. Butterflies were few and far between, so I decided to follow the general programme. By the standards of Africa it was all small beer: Piranha fishing (they must have nibbled off three times their own weight in meat bait and their taste was very bland); sloth hunting (did you know that they are excellent swimmers?); crocodile hunting (their eyes glow red in the dark); toucan watching (they look even more silly in the wild than in zoos); brazil nut picking (they fit 30 or 40 inside a round container which could be used as a cannon ball without any modification); and a bit of swimming (in water that we were assured was both croc and piranha free). Leaf cutting ants were found and their story told to the great fascination of the bankers. The

guides were enthusiastic and a good time was had by all. That this kind of upmarket nature trail tourism is possible holds out some hope for conservation.

On the last day, as we were chugging up the river in a motorised canoe, the largest, bluest, freshest *Morpho* possible flew past us. By then the *Morpho* had quite a head start, but the river was a kilometre across, and a *Morpho* can be seen from a long distance. I positioned myself in the prow of the narrow, wobbly canoe. It was not much of a platform, and doubtless the piranhas were licking their chops in anticipation. I ordered an intercept course of about 30 degrees from behind the *Morpho*. We were close enough to see it was a perfect specimen. The second intercept was even closer. The third intercept was perfect, the driver having got the hang of it by now. A swipe from behind and below, a good follow through, and the huge butterfly was safely in the net. Had it been new, *Morpho aquatica* might have been an appropriate name.— TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Notes on the behaviour of *Luperina nickerlii leechi* (the Sandhill Rustic, Lep.: Noctuidae) at its site in Cornwall

Luperina nickerlii leechi is found at a single site in Cornwall, which the owners have requested is kept secret. The moth apparently rarely flies and does not come to light (Goater, B., 1976. A new subspecies of *Luperina nickerlii* (Freyer) (Lep.: Noctuidae) from Cornwall. *Entomologist's Gazette,* **27**: 141-143). The adults may be seen at night in August and September, clinging to the stems of the foodplant *Elymus farctus,* rarely moving, although of course the adults must move to mate and lay eggs, and to hide during the day. I surveyed the site between 1987 and 1989, using light traps and quartz-halogen searchlight, in an attempt to calculate the number of moths on the site.

I found 371 moths between 14.viii.1987 and 24.ix.1989 (Spalding, A. in press. Notes on the population of *Luperina nickerlii leechi* at its site in Cornwall, 1987-1989). Excluding those found at light traps, I found 33 before 10pm, 116 between 10 and 11pm, 81 between 11pm and midnight, and 79 between midnight and 1am. I found 46 after 1am, including one after 5am, but these moths may have emerged much earlier.

Mating seems to take place late in the night. I found nine mating pairs, but none before midnight even though I found over half the moths (230) before this time. I found three pairs between midnight and 1am, four pairs between 2am and 3am, and two pairs between 3am and 4am. It appears that pairing lasts between two and five hours in the wild and the pairs separate sometime between 4am and 5am. One mating pair I saw first at 0.09 had separated by 4.15am. Another mating pair, first seen at 2.05am was still paired at 4am but had separated by 4.40am. A third pair, first seen at 3.02am, had separated by 4.55am. A fourth pair, first seen at 3.06am had separated by 5am.

I also recorded the resting position of each moth and found that most of the moths (320) were resting on the larval foodplant, *Elymus farctus* (sand couch-grass). Most of them were between 5cm and 10cm above the ground, although I found two males resting near the tip of grass stems 20cm above ground level. On this site, *Elymus farctus* is generally between 14cm and 30cm high (Spalding, A., 1991. The distribution of *Elymus farctus* on site L 1986-1989, unpublished report). Two males were found resting on a hybrid *Elymus* grass. Other Sandhill Rustics were resting on *Festuca rubra* (six moths), *Hypochaeris radicata* (4), *Ononis repens* (4), *Plantago lancealata* (2), *Circius* spp. (1) and *Tripleurospermum maritimum* (1). I found 15 resting on the sand.

Many of the moths found resting on *Elymus farctus* might have just emerged from their pupae in the sand. Where do they go during the day? It may be that Sandhill Rustics spend the day resting on grass stems. In fact, at 9.50pm on 30.viii.1989, I found a male resting on *Elymus farctus* with its wings covered in rain drops. Since the last shower that evening had been at 6pm, the moth must have been resting in the open at that time. However, I made several searches during the day for resting Sandhill Rustics, but found none, even in marked grass clumps where moths had been seen the previous evening.

To find out where the moths spent the day, on 4.ix.1988 I marked the position of some moths seen before midnight and then watched them from 5.15am onwards. Dawn was about 6.20am, when it was light enough to see without torchlight. Some moths seemed reluctant to move. I saw one female resting on *Elymus farctus* at 11.54pm and it remained motionless for over five hours until 5.42am, although it had disappeared by 6.06am. Another female sat on an *Elymus farctus* stem from 11.15pm to 5.45am, after which it dropped to the sand below. It moved about 3cm at 6.40am, then crawled into a small depression, where it remained until at least 7.55am, when I went to get breakfast. Although I had marked this specimen with red felt-tip pen, I could not find it again later. Another female sat on *Elymus farctus* for several hours from 11.45pm, but had moved onto the sand by 5.40am near to a resting male 9cm away. The male was uninterested in the female moth, and flew away. The female then crawled across the sand, moving north-west, then east for a few centimetres, then north again. It stopped at 05.59 for three minutes in a depression (made by me whilst kneeling) before moving north-west, then back into the depression, then north-west again. At 6.05, it moved under a dead leaf of *Eryngium maritimum* (see holly), where it remained at least until 7.55am. During the night it had not moved for at least 5 hours 55 minutes, but at dawn it crawled 103cm in nine minutes. It probably had not flown at all.

Only 14 Sandhill Rustics (12 males and two females) were seen flying during the period of the survey, which indicates that the Sandhill Rustic is a very sedentary moth. Apparently, some beach-dwelling flies are reluctant

to fly, possibly as an adaptation to living in a linear habitat where flying in a strong wind could lead to loss of contact with the habitat. The Sandhill Rustic may have adapted to life in a wind-blown habitat by flying only when the wind is light. In fact, the moths rarely took to the wing when disturbed and those I marked with red felt-tip pen walked in circles in the sand instead of flying away. 6.47% (24) of the moths seen had deformed wings and were unable to fly.

That Sandhill Rustics do fly is shown by the numbers that I caught at light. On 4.ix.1988, at the height of the flight period, I placed a Heath trap in the middle of the site. The wind was slight, possibly about Force 2 and the minimum temperature was 13.5°C at 6.45am. I caught several moth species, including 15 *Luperina testacea,* but the commonest moth was the Sandhill Rustic (20 caught). Of these, one was a previously marked female, three were previously marked males and 16 were males caught for the first time, including two which were darker than usual. Three days later, I ran an m.v. lamp on a white sheet. This time, the wind was strong and I caught no Sandhill Rustics, only *Autographa gamma, Tholera decimalis* and *Luperina testacea.* Either the wind was too strong, or Sandhill Rustics are reluctant to come to m.v. lamps.

Males appear to fly and come to light more readily than females. At the Heath trap on 4.ix.1988, the ratio of males to females was 19:1. Females rarely seem to fly and they crawl to their daytime resting places. A tendency to fly may be an evolutionary disadvantage for females, which seem to rest on the foodplant waiting for males to arrive. In the survey period, I found seven females resting on plants other than the foodplant and these females would have to move before they could lay their eggs. For the other females, it would be possible to mate and lay eggs without leaving the foodplant. In fact, *Elymus farctus* is a rhizomic plant, forming large clumps joined underground by a lengthy root system and when the larvae feed on the roots after winter they could travel a great distance on the roots of a single plant clump.— ADRIAN SPALDING, Lerryn Cottage, Lerryn, Lostwithiel, Cornwall PL22 0QB.

Distribution Mapping with IBM-compatible Personal Computers

DMAP is a computer program which is available for producing Distribution Maps and Coincidence Maps on IBM-compatible PCs (e.g. Amstrad PCs). It runs on all true compatibles with all commonly fitted graphics displays (e.g. Hercules, CGA, EGA and VGA). Maps are displayed on the screen (in colour for EGA and VGA) and can be printed on a wide range of printers including ordinary dot-matrix printers, inkjet printers, laser printers, and PostScript laser printers. Maps can also be generated as PC-Paintbrush or Encapsulated PostScript files for importing into Desk-Top Publishing packages.

DMAP reads data files which contain grid references defining the species distributions and study area boundaries. A wide range of grid reference

formats is accepted, including tetrad codes. A variety of symbol types is available for plotting the distributions, and text can also be displayed on the maps. The scale of mapping and the size of symbols can be fully controlled, thus allowing distribution mapping at site, county, regional, or national scale.

Data entry can be by a simple text editor (one is supplied), a simple database program supplied with DMAP, or alternatively, DMAP can be linked to a database written in a database language such as dBASE or Advanced Revelation.

For further details, write to: Dr Alan Morton, Imperial College, Silwood Park, Ascot, Berkshire SL5 7PY.

Notes on two British *Bagous* spp. (Col.: Curculionidae)

B. diglyptus Boh.: in Shirt (ed.), 1987, British Red Data Books: **2**: Insects: 248, the Norfolk Broads is one of three localities given for this extremely rare *Bagous*. I know of two alleged records for this area, but both have been found to refer to other species. *B. diglyptus* was recorded from Sutton Broad in Fowler & Donisthorpe, 1913, *Col. Brit. Isl.* **6**: 311, as taken by Chitty and Donisthorpe; however, in 1935, (Blair, *Ent. mon. Mag.* **71**: 250), in adding the true *B. frit* (Hbst.) to our list, pointed out that this and not *B. diglyptus* was the species actually taken there. Again, Sharp had in 1917 (ibid. **53**: 106) mentioned a specimen supposed to be *diglyptus* in the A.J. Chitty collection at Oxford, from Stalham Broad, 8.vi.1906, which he could not reconcile with the descriptions; this I examined in 1963 and made it out to be a large example of *B. longitarsis* Thoms. If there is a genuine Norfolk record of *B. diglyptus,* it would be interesting to have details. It is perhaps not well known that there are *two* Suffolk records of this species: Ipswich, near the R. Gipping, from dead reeds (Morley, 1897, *Entomologist's mon. Mag.* **33**: 44) — I believe that he later took a second specimen at the same spot — and Brandon, one from a ditch (P. Harwood, in whose collection I have seen it).

B. longitarsis Thoms. is a species I believe to be rather more widespread than the very few records suggest, and not quite so rare as supposed. Its headquarters here is the Romney Marsh area of S.E. Kent, but it has occurred also in the extreme east of W. Kent. I took one specimen in April 1948 and several in June 1949 at Allhallows-on-Sea, by the side of a little brackish ditch apparently devoid of vegetation but very good for Bagoi. I failed, however, to find it in the Higham Marshes below Gravesend where, when conditions were right, I have had seven species of *Bagous* together in the sweep-net. It should occur in East Anglia, and indeed if my re-determination of the Chitty *"diglyptus"* as *longitarsis* is correct (see above), it has — Stalham Broad, Norfolk. I can further add E. Sussex: Rye (not far west of the Romney district), a series in coll. Donisthorpe standing as *"claudicans* Boh"; and Surrey: Woking (Champion), in coll. Power, standing as *arduus* Sharp.

In passing I may remark that *B. lutosus* (Gyll.) seems to have been accidentally omitted from the Red Data Book. It is one of our generally very rare species with only some three established (?) colonies known.— A.A. ALLEN, 49 Moltcalm Road, Charlton, London SE7 8QG.

Urocerus gigas (Hym.: Siricidae) patrolling bare hilltop

At 1900 hours on 21.vii.1991, at the top of Knock Hill (NJ 537551) in Banffshire (v.c. 94) I noticed a large wasp-like insect continually patrolling the area about one metre above the ground in warm sunshine and a moderate breeze. I netted it (somewhat nervously) and found it to be a male Horntail *Urocerus gigas.*

The summit of Knock Hill reaches an altitude of 430 metres, and is covered only with stunted heather, mosses and lichens. The nearest conifers are over half a kilometre distant and 140 metres lower. Not being familiar with the habits of the Siricidae I have no idea whether this sighting was unusual; could it have been an instance of hill-topping as practised by various butterflies?— ROY LEVERTON, Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

Omosita depressa (L.) (Col.: Nitidulidae) apparently new to Kent

I was surprised to sweep an example of this beetle near the rubbish heap at the end of my garden on 29th April 1986. Though common enough towards the north and in Scotland, it is (as stated by Fowler, 1889, *Col. Brit. Isl.,* **3**: 238) rare in the south, where I have only twice taken it, singly: Fawley (Hants) and Windsor (Berks). It is known also from Surrey and Sussex, and probably other southern counties. Strangely, however, I find no published record for Kent, of which the present one would rather appear to be the first. Most likely the specimen was attracted to bones, as are its common congeners *O. colon* (L.) and *O. discoidea* (F.), the latter being very frequent in the garden.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Pammene agnotana (Reb.) (Lep.: Tortricidae) resident in Kent

On 20th April 1990, a cool cloudy day, I was beating hawthorn at Dartford, Kent, to collect *Pammene rhediella* Clerck. This is a nice way to collect fresh specimens of this species. Another tortricid, which I did not recognise, fell onto the tray. When set, it was tentatively identified as *Pammene agnotana.* However, in the absence of confirmation I decided to have another try for the species as soon as conditions permitted in 1991. On 26th April, another cool cloudy day, I secured another four fresh specimens after about two hours' beating of the hawthorn bushes. It turns

out that my 1990 specimen is the third for Great Britain and the first for Kent. Finding the species at the same locality in two successive years would suggest that it is resident in this Kentish locality. I am grateful to Michael Chalmers-Hunt and the staff of the Natural History Museum for confirming the identity of these moths.— D. O'KEEFFE, 50 Hazelmere Road, Petts Wood, Orpington, Kent BR5 1PD.

Cold tolerance of the immature stages of *Autographa gamma* L. (Lep.: Noctuidae)

In the United Kingdom the Silver Y (*Autographa gamma* L.) is considered to have the status of an immigrant, appearing from spring to autumn (Skinner, 1984). Although a few cases of winter survival by moths have been proved, the earlier stages are believed to be unable to develop at low temperatures, larvae and pupae being killed by frost (Heath & Emmet, 1983).

In April 1991 I was shown an adult *gamma* which had been reared from larvae found by the Wooding family on 25.iii.1991 at Great Oakley, N. Essex (TM 1927). Two larvae had been found feeding on commercially grown Parsley (*Petroselinum crispum*) in an open field. The parsley crop had been cut back in autumn to promote new growth, as is the normal practice, and had been left exposed to the elements thereafter.

On being brought into a warm kitchen the larva spun up around 28.iii.1991 and the first moth emerged on 7.iv.1991.

At average English summer temperatures development from ovum to imago takes 45-50 days (Heath & Emmet *loc. cit.*). This period must presumably be increased at lower temperatures.

Only 60 days before the date of emergence of the first *gamma* N.E. Essex had experienced some of the coldest weather conditions in four years, with heavy snowfalls and daytime temperatures below freezing lasting for about one week. The local press reported a minimum of $-4°C$ in the Colchester area, with $-6°C$ being recorded at Stansted Airport on the same night (Norwich Weather Centre data).

Even allowing for the insulating effects of the snow and the accelerated development caused by the final stage larvae being brought into the warm, the early stages of *gamma* must, in some instances, be able to survive exposure to freezing temperatures and still complete their metamorphosis successfully.

I should like to thank Pat and Charlotte Wooding for bringing the moth to my attention, Brian Goodey for his advice and Norwich Weather Centre for temperature data.

References: Heath, J. & Emmet, A.M., 1983. *The Moths and Butterflies of Great Britain and Ireland* **10** Noctuidae (Part II) and Agaristidae. Harley. Skinner, B., 1984. *Colour Identification Guide to Moths of the British Isles.* Viking.—JERRY BOWDREY, Colchester Museum, 14 Ryegate Road, Colchester, Essex CO1 1YG.

Rum, Roum, or Rhum?

The question of the correct spelling of the name of our neighbouring island (*Ent. Rec.* **103** *passim*) can be settled if the following facts are allowed for: (a) ROUM is the Scots way of spelling the name, OU in Scots = long U in Gaelic. (b) RH is a Welsh combination of consonants, not used in Gaelic at all. (c) James A. MacKay's *Islands Postal Series* reveals that the official spelling of the name of the Island had been altered from RUM to RHUM to please a well-known proprietor, who came from England. We locals are glad that the correct spelling has been restored. At one time earlier, a previous proprietor of the nearby Isle of Muck had tried to get the name changed to Monk Island, unsuccessfully. Here MUCK = Gaelic MUC = pig, but used in the Isles for WHALE, the full Gaelic name for Whale meaning literally "sea-pig".

As for the origin of the name RUM, it seems to be both pre-Norse and pre-Gaelic, and the meaning unknown, as are names such as MULL, ISLAY (ÌLE), and UIST. RUM can hardly be connected with DRUIM = "Ridge", as the genitive of DRUIM is DROMA, "The island of the ridge" would be EILEAN AN DROMA. Compare Tyndrum in Argyllshire, which is Taigh an Droma in Gaelic = House of the Ridge. Incidentally, the name CANNA is supposed to be connected with Gaelic CANA = a dolphin. Whales and dolphins are frequently seen around these island, and the map shows Canna's dolphin shape.— J.L. CAMPBELL, Isle of Canna.

Early spring moths in June

The spring of 1991 was about a month later that the early springs of 1989 and 1990 and the early summer was cool but dry with below average temperatures producing some unusually late dates for some of the spring moths which emerge in March.

I took *Orthosia stabilis* (D. & S.) and *Orthosia gothica* (L.) as late as 1st June at Freshwater and Mr N. Holland recorded *Xylocampa areola* (Esp.) at mercury vapour light at Queen's Bower, Shanklin on 15th June. This very late date may suggest that this species can sometimes spend two years in the pupal stage.— S.A. KNILL-JONES, 2 School Green Road, Freshwater, Isle of Wight.

An additional pupation site of *Limnaecia phragmitella* Stainton (Lep.: Cosmopterigidae)

While examining a dead *Typha latifolia* plant at Colwick, Nottinghamshire on 21st June last, I noticed a number of exit holes in the leaf-sheaths low down on the plant. These were clearly too small for a wainscot species. Some of the holes had been "capped" while others were left open. Pulling these leaves away from the stem revealed short mines with pupae head-upwards close to the exit holes. Additional holes were found in the stem itself and splitting this revealed pupae in the pith. Reference to the *Field Guide* led me to believe that I had discovered the pyralid *Calamotropha paludella* (Hübner), though this would have been a north-westerly

extension of its known range (*British Pyralid Moths,* B. Goater, 1986). I had dismissed *Limnaecia phragmitella* because the *Field Guide* states that it pupates in the seed-heads. However, when the first imago eclosed on 14th July, it was at once obvious that this was not a pyralid but *L. phragmitella* after all, the only other micro known to be associated with *Typha* in Britain. However, because the pupae were in the "wrong" situation, I felt unsure of my own identification and collected more tenanted sections of *Typha* stem which I sent to Col. A.M. Emmet for his appraisal. I was pleased to receive confirmation when his specimens emerged and would like to thank him for his comments and verification.— A.S. BOOT, Buntings Lane, Carlton, Nottingham NG4 1GX.

***Limnaecia phragmitella* in the stems of bulrush**

It seems worth while recording that in April 1991, at Salary Brook, Colchester, I found larvae of *Limnaecia phragmitella* Stainton (Lep.: Cosmopterigidae) abundant in the stems of *Typha latifolia.* At this time of year the plant material rather resembles tightly packed corrugated cardboard, and within these papery layers larvae had spun cocoons made from silk and chewed-up pith, giving an impression that feeding had occurred. Exit holes, measuring 1mm in diameter, each covered by a cap of silk and chewed pith, were constructed by larvae prior to pupation. In *A field guide to the smaller British Lepidoptera* (Edn. 2, 1988) the only pupation site mentioned is in the seed-heads.— B. GOODEY, 298 Ipswich Road, Colchester, Essex.

***Nycteola revayana* Scopoli (Lep.: Noctuidae) during the summer**

Looking back on my past Essex records for the above species over the last five years I found that 50% of captures have occurred during June-July. Although none of the recently published textbooks I have consulted mention a second generation for mainland Britain Pelham-Clinton, in volume 10 of *The moths and butterflies of Great Britain and Ireland* (1983), does state that the species is bivoltine in the Isles of Scilly (p. 321). It would be interesting to know if this is a spreading trend, due perhaps to the warmer summers of late, or whether it is purely a local phenomenon.— B. GOODEY, 298 Ipswich Road, Colchester, Essex.

The Speckled Wood (*Pararge aegeria* L.) reaches N. Aberdeenshire

Barbour (*Ent. Rec.* **98**: 98-105) documented the recent range expansion of *Pararge aegeria* L. in N.E. Scotland, as it spread from the west to reach the Moray Firth by about 1954 and Banffshire (v.c. 94) by 1983. He predicted that Aberdeenshire would be colonised by 1986, and may well have been correct, but partly because of the scarcity of observers there was still no definite record by the beginning of 1991 (R.M. Palmer, unpublished list).

On 4.viii.1991 I was visiting a friend, Mr D. Thorn, whose land backs onto the eastern edge of a mature conifer plantation of pine and spruce known as Kinnoir Wood (NJ 5542), near Huntly in N. Aberdeenshire (v.c.

93). Thinking the habitat looked ideal for *P. aegeria,* I asked whether it was present. He replied that he had seen one nearby just a few days earlier, but had not realised its significance. Following his directions, I soon found a very freshly emerged female. This suggests that unconfirmed reports from the same area two or three years earlier (Dr M. Young, pers. comm.) were almost certainly correct.

The Ringlet, *Aphantopus hyperantus* L., was also present in good numbers, though outside its area of distribution as shown by the latest maps (Emmet, M.A. & Heath, J. *The Butterflies of Great Britain and Ireland,* Harley, Colchester, 1990). Perhaps as *P. aegeria* spreads eastwards, *A. hyperantus* is spreading westwards, using the same shaded and sheltered grassy habitat provided by the rides and edges of the now-maturing conifer plantations. The Scotch Argus, *Erebia aethiops* Esp., was also abundant at the site: it too has apparently colonised this part of Scotland within the last century (Barbour, *Ent. Rec.* **88**: 1-11). *Carduelis spinus* L. were calling overhead, leaving me feeling that, in some habitats at least, "coniferisation" is not as wholly bad for wildlife as one fears.—ROY LEVERTON, Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

A nomenclatural comment

In the Editor's review of a recent work by G.S. Medvedev (*antea*: 215) he suggests that the reader must take a sympathetic view of the nomenclature used, giving as an example "endings such as *Prays fraxinellus* rather than *fraxinella*". Indeed this particular reader takes a *very* sympathetic view. Might it, I wonder, be that the author was schooled in the classics and could not bring himself to countenance such a crude barbarism as the combination *P. fraxinella*? For *Prays* (Greek "gentle, mild, tame") is an exclusively masculine form, as anyone capable of using a Greek lexicon could have verified in a few moments; and we must surely assume that its author, Hübner, so intended it. The rules of nomenclature require gender-agreement, in which they are at one with normally accepted standards of literacy.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

IMMIGRATION OF LEPIDOPTERA 1990 AND 1991

A NUMBER of readers have asked about the 1990 report on the immigration of Lepidoptera. The sad death of Russell Bretherton earlier this year has delayed the compilation of this report, but Michael Chalmers-Hunt and Bernard Skinner hope to complete the work for publication early in 1992.

We are very pleased to announce that Bernard Skinner has agreed to collate the records for 1991 and subsequent years so that the annual reports in the *Record* can continue. Will readers please send details (species, date, locality, method of capture and any other relevant details) of all 1991 immigration records ***by the end of January 1992 at the latest***, to B. Skinner, 5 Rawlins Close, South Croydon, Surrey CR2 8JS. Editor

A natural history of the butterflies and moths of Shropshire by **Adrian M. Riley.** 205pp. 32 colour illustrations. Paperback. Swan Hill Press. 1991. £19.95.

This first list of Shropshire Lepidoptera since the *Victoria County History* comprises a brief introduction to the county, a chapter on recording and conservation in Shropshire, the main "natural history" and a variety of appendices — an inventory of the microlepidoptera, butterfly distribution maps, gazeteer, bibliography and index.

Each species noted between the recording windows of 1807 and 1990 is listed by "log-book" number, English and scientific name. Records are divided into VCH and post-VCH categories; the flight-time is noted as are foodplants and any other points of interest. For the distribution, only the year and locality are given, with reference where appropriate to the bibliography. The larval foodplant list is culled from current literature, but known Shropshire foodplants are indicated. The colour illustrations cover habitats — particularly useful for those unfamiliar with the county — a plate of historic specimens, one of unusual forms and the now obligatory clutch of butterflies in natural poses.

It is nice to see the microlepidoptera listed — although the author acknowledges that the microlepidoptera are poorly known, the compiled list shows a good range of species and provides a sound base for further research. Although a number of proof-reading errors have crept in, this is a well-produced and well researched book at a reasonable price. PAS

Nordens Ugler by **Peder Skou.** 566pp, 37 colour plates, 530 figs and numerous maps. Boards. Apollo Books, 1991. DKr 600 (about £50).

This fifth volume in the *Danmarks Dyreliv* series covers the Noctuidae of Denmark, Norway, Finland and Iceland. Although there is a short English introduction, the text is in Danish. Unlike the *Nordens Malere,* we understand there will be no English edition. After a brief description of each species there are comments on its range, the habitat, flight period and notes on the general biology. The text is augmented with many figures of larvae, habitat and, most usefully, monochrome photographs of closely related species showing diagnostic features. Genitalia are illustrated where appropriate. The colour plates, produced from photographs by David Wilson, are of high quality. This is the first textbook seen by the reviewer in which specimens (six of each) of the recently separated *Mesapamea* species *didyma* and *secalis* are illustrated.

The last few years have seen a number of good publications on the European Noctuidae, including the reprint of Culot. One wonders what there is new to say or see — but not for long! The illustrations are well worth studying in detail — especially those showing diagnostic features. The text, although needing some head-scratching and a dictionary, yields much of interest. Apollo Books are to be congratulated on maintaining the high standard of this series. Paul Sokoloff

Madam Dragonfly — the life and times of Cynthia Longfield by **Jane Hayter-Hames.** 208pp. Illustrated. Boards. The Pentland Press Ltd. 1991. £15.95.

Biographical accounts of entomologists are somewhat scarce, and this account of Cynthia Longfield's life, by her great-niece, is particularly welcome. Most naturalists will immediately associate the Longfield name with the two popular works *Dragonflies of the British Isles* in the Wayside and Woodland series, and *Dragonflies,* in the Collin's New Naturalist series. Few will have any insight into her extraordinary life — self-taught scientist and inveterate traveller and explorer.

The book takes us from early childhood in the 1890s through Longfield's many journeys across the globe to the last years before her death on 27th June 1991. The text takes a narrative form, with liberal quotations from Longfield's diary and photographs illustrating her travels and personalities with whom she worked — including one of Evelyn Cheesman, a companion on several expeditions. There is also an interesting illustration of Longfield's mothing screen, taken in Brazil in 1927. A well researched book which makes fascinating reading. PAS

The butterflies of Britain and Ireland by **Jeremy Thomas.** Illustrated by **Richard Lewington**. 244pp, numerous colour illustrations. 250 x 250mm. Boards. Dorling Kindersley. National Trust 191. £16.99.

Another book on butterflies! — but do not despair — this one is different. Rather than treat each of the species in the conventional way, each — typically one or two text pages with distribution map — is treated differently, focussing on its individual points of interest, be they life history, habitat, courtship or a host of other headings. Jeremy Thomas has a great talent for combining astute observation, scientific accuracy and a really readable style. Even those who have read every recent book on butterflies will find this book interesting and informative. Surprisingly, there is not a single colour photograph of a butterfly in the book. The author has chosen paintings — typically each species has a page of illustrations, upper and underside of each sex, an occasional form or aberration, a resting pose, and a variety of early stages. Lewington's illustrations are superb, both crisp and delicate. The quality of printing and presentation is excellent. The only real criticism is the format — the virtually square size of the book makes it an aberration on most bookshelves. PAS

The Role of Ground Beetles in Ecological and Environmental Studies. Edited by **Nigel E. Stork** pp.424. Intercept Ltd, Andover. 1990. Price £40.

This is an account of the proceedings of the seventh European Carabidologists' Meeting held in London in September 1989. It comprises written versions of most (31) of the oral presentations given at the meeting and of the 16 poster sessions.

The topics cover carabid biology and ecology from sites as far away as Australia and the Galapagos Archipelago, though most refer to studies in western Europe in contexts familiar to British entomologists. Understandably, the presentations will be particularly of value to those who study carabids but the non-specialist British coleopterist also will find much of interest, such as the accounts of carabid beetles in urban areas, in ruderal parkland and in grass/arable mosaic. Those who use pitfall trapping to obtain specimens or for site evaluations will wish to read about the influence of ethylene glycol (as a trap preservative) on carabids and other arthropods caught in such traps while those concerned with "green" issues will need to read the accounts of the action of pesticides on ground beetles.

A point which the editor highlights is the lack of consensus on scientific nomenclature among the contributors. Non-standard scientific nomenclature is, of course, nothing new to those who consult Fowler, Joy, Kloet and Hincks, and the other R.E.S. Handbooks but the matter of scientific nomenclature is something entomologists should try and deal with soon. The laws of priority have really not stood the test of time. For European entomologists it is not just a matter of better communication; there is always the possibility, these days, of Brussels stepping in with an official list.

This volume upholds the traditions established in published proceedings of earlier meetings of the group. Though many nationalities were represented among the contributors, the proceedings are in very readable English, which says much for the combined diligence of the contributors, the referees and the editor. Proscribed reading for carabid specialists, this volume should be readily available to all British coleopterists. If you can't afford to buy yourself a copy, suggest it as a birthday present or get your librarian to acquire it.

J.A. Owen

Cynthia Longfield, 1896 - 1991

Cynthia Longfield died on 27th June 1991 at the age of 95.

Although without any formal training in entomology she became perhaps the most influential figure in the study of British Odonata, and achieved international recognition for her taxonomic work on dragonflies. Most amateur naturalists will remember her for *The dragonflies of the British Isles* published in Warne's Wayside and Woodland series in 1937, and reprinted in 1949. She was also co-author of the New Naturalist publication *Dragonflies* published in 1960 — a book that still commands a staggering price on the secondhand market.

For 30 years she worked in an honorary capacity as a taxonomist at the British Museum (Natural History), and during her lifetime travelled extensively over five continents — including a six month solo trip across Africa in the early 1930s. A biography entitled *Madam dragonfly* has recently been published, and a review appears elsewhere in this issue.

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

(Founded by J.W. TUTT on 15th April 1890)

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The Entomologist's Record and Journal of Variation

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